

Exhibit E

IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION

OHIO PUBLIC EMPLOYEES RETIREMENT
SYSTEM, Individually and on Behalf of All
Others Similarly Situated,

Plaintiff,

vs.

FEDERAL HOME LOAN MORTGAGE
CORPORATION a/k/a FREDDIE MAC, et al.,

Defendants.

Case No. 4:08-cv-00160-BYP

REPORT ON MARKET EFFICIENCY

PROFESSOR STEVEN P. FEINSTEIN, PH.D., CFA

June 7, 2017

TABLE OF CONTENTS

I.	SCOPE OF PROJECT AND REPORT	1
II.	CREDENTIALS	2
III.	CONCLUSIONS.....	5
IV.	FACTUAL BACKGROUND.....	6
	A. About the Company	6
	B. Relevant Procedural History	7
V.	EFFICIENT MARKET DEFINED.....	9
	A. The Cammer Factors.....	12
	B. The Krogman Factors	14
VI.	EFFICIENCY OF THE MARKET FOR FREDDIE MAC COMMON STOCK	15
	A. Trading Volume	15
	B. Analyst Coverage and Other Avenues of Information Dissemination	16
	1. Analyst Coverage.....	16
	2. Institutional Ownership and Buy-Side Analysis.....	18
	3. News Coverage	18
	C. Market Makers and Listing on the New York Stock Exchange	19
	D. S-3 Registration Eligibility	21
	E. Krogman Factors.....	24
	1. Market Capitalization.....	24
	2. Float	25
	3. Bid-Ask Spread.....	25
VII.	EMPIRICAL EVIDENCE OF MARKET EFFICIENCY FOR FREDDIE MAC COMMON STOCK.....	27
	A. Event Study Test of Market Efficiency	28
	1. A Caveat About Non-Significant Stock Price Movements.....	29
	2. Selection of Allegation-Related Event.....	31
	3. Selection of Collective Events: WSJ/NYT News Event Dates	33
	4. Isolating the Impact of Company-Specific Information	34
	5. t-Test	37
	6. Allegation-Related Event Study Results.....	37
	B. Collective Empirical Test Conducted on all WSJ/NYT News Event Dates.....	38
	1. Z-Test Analysis of Frequency of Significant Event Returns	39

VIII.	MARKET EFFICIENCY SUMMARY	40
IX.	PER SHARE DAMAGE METHODOLOGY	41
A.	Section 10(b) Per Share Damage Methodology.....	42
X.	LIMITING FACTORS AND OTHER ASSUMPTIONS.....	45
XI.	APPENDIX: LOGARITHMIC RETURNS	46

I. SCOPE OF PROJECT AND REPORT

1. In my declaration dated 16 December 2016 (the “December Declaration”), I concluded that in the years subsequent to the Expert Report of Dr. Greg Hallman, dated 16 August 2012 (the “Hallman Report”), substantial developments have occurred in the legal, academic, and practitioner’s arenas concerning what needs to be proved regarding market efficiency, including what tests are therefore appropriate, and how damages could be computed on a consistent basis for all proposed class members.
2. Subsequently, I was asked by Markovits, Stock & DeMarco, LLC and Strauss Troy Co., LPA, Co-Lead Counsel for the Plaintiff, to determine whether the common stock of The Federal Home Loan Mortgage Corporation (“Freddie Mac” or the “Company”) traded in an efficient market during the period from 1 August 2006 through 20 November 2007 (the “Class Period”).
3. In addition, I was asked to opine on whether damages in this matter can be computed using a common class-wide methodology for all Class members in connection with their claims under Section 10(b) of the Exchange Act of 1934 (the “Exchange Act”) and U.S. Securities & Exchange Commission (“SEC”) Rule 10b-5 adopted thereunder (collectively, “Section 10(b)").
4. Toward these ends, I analyzed the market for Freddie Mac common stock, the price behavior of the stock, and the factors that are generally accepted to be indicative of market efficiency. I examined Company press releases, conference call transcripts, equity analyst reports, news articles, regulatory filings, daily prices of the common stock, trading volume, the performance of the overall stock market, the performance of Freddie Mac’s peer group, the Hallman Report, the Expert Report of Mukesh Bajaj dated 14 December 2012 (the

“Bajaj Report”), as well as other pertinent data and documents. I also read the Third Amended Complaint for Violations of the Federal Securities Laws (the “Complaint”) dated 28 March 2012, and considered the allegations therein. Exhibit-1 lists the documents I considered in preparing this report and arriving at the opinions expressed herein.

5. This report presents my methodology, findings, and conclusions.
6. I reserve the right to amend, refine, or modify my opinion and report, including in the event any additional information or analysis becomes available.

II. CREDENTIALS

7. I am an Associate Professor of Finance at Babson College, and the founder and president of Crowninshield Financial Research, Inc., a financial economics consulting firm.
8. I hold a Ph.D. in Economics from Yale University, a Master of Philosophy degree in Economics from Yale University, a Master of Arts in Economics from Yale University, and a Bachelor of Arts degree in Economics from Pomona College. I also hold the Chartered Financial Analyst (“CFA”) designation, granted by the CFA Institute.
9. At Babson College, I have taught undergraduate and MBA level courses in Capital Markets, Investments, Equity Analysis, Fixed Income Analysis, Financial Management, Risk Management, Quantitative Methods, and Security Valuation. I have also taught executive courses on investments and corporate financial management for numerous corporations. Other courses I have taught are listed in my curriculum vitae, which is attached as Exhibit-2.
10. At Babson College, I have held the Chair in Applied Investments and served as the Director of the Stephen D. Cutler Investment Management Center, a research and education center dedicated to the study and teaching of investments and capital markets.

11. Prior to my joining the faculty at Babson College, I taught finance at Boston University. Previously, I was an Economist at the Federal Reserve Bank of Atlanta where my primary responsibilities were to monitor financial markets, analyze proposed regulation, and advise the Bank President in preparation for his participation in meetings of the Federal Open Market Committee – the government body responsible for monetary policy in the United States.
12. I have published in the field of finance. My finance articles have appeared in the *Atlanta Federal Reserve Bank Economic Review*, *Derivatives Quarterly*, *Derivatives Weekly*, *The Engineering Economist*, *The Journal of Risk*, *The American Bankruptcy Institute Journal*, *The Journal of Financial Planning*, *The Journal of Forensic Economics*, *Managerial Finance*, *Risk Management*, and *Primus*. I am the author of *Finance and Accounting for Project Management*, published by the American Management Association. I wrote two chapters in the book *The Portable MBA in Finance and Accounting* – one on corporate financial planning and the other on risk management. I have presented research at the annual conventions of the American Finance Association, the Academy of Financial Services, the Multinational Finance Society, the Financial Management Association, the Taxpayers Against Fraud Education Fund Conference, and the International Conference on Applied Business Research. Co-authored papers of mine have been presented at the Eastern Finance Association meetings and the Midwestern Finance Association meetings. A list of all the publications I authored in the previous ten years can be found in my curriculum vitae, which is attached as Exhibit-2.
13. I have been selected to review papers for numerous finance journals and conferences, and I have reviewed finance textbook manuscripts for Prentice-Hall, Elsevier, Blackwell, and

Southwestern Publishing. I have been quoted on matters relating to finance and investments in *The Wall Street Journal*, *The Washington Post*, *The New York Times*, *The Financial Times*, *The Boston Globe*, and *Bloomberg News*, and my research relating to financial analysis and valuation has been discussed in *The Wall Street Journal*, *Bond Buyer*, and *Grant's Municipal Bond Observer*.

14. I am a member of the American Finance Association, the Financial Management Association, the North American Case Research Association, the National Association of Forensic Economics, the CFA Institute, and the CFA Society Boston, where I have served as a member of the education committee and ethics subcommittee. I served on the Fixed Income Specialization Examination Committee of the CFA Institute.
15. The CFA designation is the premier credential for financial analysts worldwide. In order to receive this credential, applicants must pass a series of three exams covering such topics as economics, equity analysis, financial valuation, business analysis, quantitative methods, investment analysis, portfolio management, risk management, financial accounting, and ethical and professional standards. For over ten years I taught in the Boston University CFA Review Program and the CFA Society Boston Review Program – two of the leading review programs that prepared candidates for the CFA exams. In both of these programs I taught candidates at the most advanced level.
16. In addition to my teaching, research, CFA, and academic community responsibilities, I practice extensively as a financial consultant. Past clients include the United States Securities and Exchange Commission, the Internal Revenue Service, the Attorney General of the State of Illinois, and the National Association of Securities Dealers. As a financial consultant, I have conducted analyses and presented opinions related to markets, valuation,

and damages in over 70 cases. Testimony that I have provided since my December Declaration is identified in Exhibit-3.

17. I am the sole owner of the consulting firm Crowninshield Financial Research, which receives compensation for the work performed by me and the analysts who assist me on this case. My firm is being compensated at a rate of \$825 per hour for my work. My compensation is neither contingent on my findings nor on the outcome of this matter.

III. CONCLUSIONS

18. Freddie Mac common stock traded in an efficient market over the course of the Class Period. Freddie Mac common stock satisfied the factors set forth in *Cammer v. Bloom*, 711 F. Supp. 1264, 1273 (D.N.J. 1989) and *Krogman v. Sterritt*, 202 F.R.D. 467 (N.D. Tex. 2001), which, consistent with financial economic principles, empirical research, and even Dr. Bajaj's recent testimony, indicate market efficiency. *See* Expert Report of Mukesh Bajaj, Ph.D., dated 11 October 2016 (the "Bajaj Allergan Report"), ¶14.
19. Event study analysis demonstrates that there was a cause and effect relationship between the release of new, Company-specific information and movements in Freddie Mac's stock price during the Class Period. Freddie Mac's stock price responded in a statistically significant fashion to new Company-specific information, which not only indicates market efficiency, but provides direct demonstrative evidence of market efficiency.
20. Based on the foregoing, I conclude that Freddie Mac common stock traded in an efficient market over the course of the Class Period.
21. Damages in this matter can be computed for all Class Members using a common methodology that is consistent with the Plaintiff's allegations of liability.

IV. FACTUAL BACKGROUND

A. About the Company

22. Freddie Mac is a government sponsored enterprise (“GSE”) that was chartered by Congress in 1970 to stabilize the residential mortgage markets in the United States by expanding consumer opportunities for homeownership and affordable rental housing through the provision of liquidity, stability, and affordability to U.S. consumers. Freddie Mac, Financial Report for the Three Months Ended 31 March 2007, dated 14 June 2007 (“June 2007 Report”), p. 1. To fulfill this mandate, Freddie Mac purchases residential mortgages and mortgage-related securities in the secondary market and securitizes these assets into new mortgage-related securities, which are subsequently sold to investors. *Id.* Freddie Mac then uses the proceeds from the sale of mortgage-related securities to purchase additional mortgages from primary market mortgage lenders, which helps provide these lenders with a continuous and predictable supply of funds. *Id.* In addition, Freddie Mac also purchases mortgages and mortgage-related securities for its own investments portfolio. *Id.*
23. Though Freddie Mac was chartered by Congress, the Company has been funded entirely through private capital since its inception and throughout the Class Period. *Id.*, p. 2. The U.S. government was not obligated to fund any mortgage purchase, financing activity, or guarantee any securities or obligations on Freddie Mac’s behalf. *Id.*, p. 1. That being said, there was a widespread perception of an implied guarantee by the U.S. government, which afforded Freddie Mac a rate advantage and insulated it to some extent from volatility that affected other financial institutions. *See*, David J. Reiss, “The Federal Government’s Implied Guarantee of Fannie Mae’s and Freddie Mac’s Obligations: Uncle Sam Will Pick Up the Tab,” 42 *Georgia Law Review* 1019 (2008).

24. During the Class Period, the Company's stock traded on the New York Stock Exchange ("NYSE") under the ticker symbol FRE.
25. At the close of trading on 1 August 2006, the start of the Class Period, Freddie Mac's common stock price was \$57.53 per share, according to price data obtained from the Center for Research in Security Prices ("CRSP"), a reliable data source that is widely used by academic researchers and investment professionals. By the close of trading on 20 November 2007, the last day of the Class Period, Freddie Mac's stock price had fallen to \$26.74 per share. The share price decline from 1 August 2006 to 20 November 2007 was \$30.79 per share, representing a loss of 53.52%.
26. As of the close of trading on 1 August 2006, Freddie Mac's market capitalization (the aggregate value of all outstanding common shares), obtained from Company filings, stood at \$39.8 billion. By the close of trading on 20 November 2007, the Company's market capitalization had fallen to \$17.5 billion. The decline in market capitalization from 1 August 2006 to 20 November 2007 was \$22.3 billion, representing a loss of 56.1% of the Company's market value of equity. The number of shares outstanding declined during the Class Period as the Company repurchased shares, which is why the decline in market capitalization is larger than the decline in share price.

B. Relevant Procedural History

27. On 16 August 2012, Dr. Hallman submitted a report in this matter opining on the efficiency of the market for Freddie Mac common stock during the Class Period. Specifically, Dr. Hallman found that the *Cammer* and *Krogman* factors provided "persuasive evidence of the (semi-strong form) efficiency of the market for Freddie Mac common stock over the class period examined." Hallman Report, ¶33.

28. Subsequently, on 14 December 2012, Dr. Bajaj submitted a rebuttal report in response to the Hallman Report. Dr. Bajaj concluded that: 1) “Dr. Hallman fails to establish that the market for Freddie Mac common stock was semi-strong form efficient during the proposed class period, and the results of his event study suggest that it was not,” and 2) “the economic evidence does not support a finding that the alleged misrepresentations and omissions inflated the price of Freddie Mac’s common stock or that they were material.” Bajaj Report, ¶15. Dr. Bajaj did not contest that seven of the eight *Cammer* and *Krogman* factors indicating market efficiency were satisfied. He challenged only the validity of Dr. Hallman’s event study used to establish *Cammer* factor number five, a factor Dr. Bajaj argued must be shown in order to establish market efficiency.
29. On 18 January 2013, Dr. Hallman submitted a rebuttal report in which he addressed Dr. Bajaj’s criticisms (the “Hallman Rebuttal”).
30. Recent academic literature notes that it has become increasingly apparent that, in some cases, event study tests have low power, meaning that an event study test may fail to indicate market efficiency even when the market is indeed efficient. When the standard event test has low power, augmenting the event study test with additional empirical tests is indicated. “Event Studies in Securities Litigation: Low Power, Confounding Effects, And Bias,” by Alon Brav and J.B. Heaton, Washington University Law Review, 30 March 2015.
31. In my December Declaration, I found that since the time of the submissions of expert reports in this matter, substantial developments have occurred in the legal, academic, and practitioner’s arenas concerning what needs to be proved regarding market efficiency, including what tests are therefore appropriate, and how damages could be computed on a consistent basis for all proposed class members. December Declaration, ¶29.

32. Also, in 2014, the Supreme Court in its *Halliburton II* decision clarified that there are degrees of market efficiency and that perfect market efficiency is not necessary in order to invoke the fraud on the market presumption, and therefore need not be proved. Rather, what is necessary is the “fairly modest premise that ‘market professionals generally consider most publicly announced material statements about companies, thereby affecting stock market prices.’” *Halliburton Co. v. Erica P. John Fund, Inc.*, 134 S. Ct. 2398, 2403, 189 L. Ed. 339 (2014) (“*Halliburton II*”), citing *Basic*, 485 U.S. at 248 n. 28.
33. Moreover, the Court made clear in its elaboration that it is informational efficiency rather than fundamental efficiency that is most relevant to a securities case. Informational efficiency addresses whether security prices reflect and are therefore affected by available information, whereas fundamental efficiency means that a security price conforms at all times to the valuations determined by a particular pricing model.

V. EFFICIENT MARKET DEFINED

34. The definition of market efficiency set forth by Judge Alfred J. Lechner, Jr. in the 1989 *Cammer v. Bloom* decision is often cited as a legal authority on the meaning of market efficiency and is consistent with the definition of informational efficiency generally accepted by the academic finance community:

“As relevant here, courts have permitted a rebuttable presumption of reliance in the case of securities traded in ‘efficient markets’ (*i.e.*, markets which are so active and followed that material information disclosed by a company is expected to be reflected in the stock price).”

***Cammer v. Bloom* Opinion, 711 F. Supp. 1264, 1273 (D.N.J. 1989).**

35. Judge Lechner also cited the definitions offered by commentators Alan R. Bromberg and Lewis D. Lowenfels, and by finance professor Eugene Fama:

“An efficient market is one which rapidly reflects new information in price.”

Alan Bromberg & Lewis Lowenfels, *Securities Fraud and Commodities Fraud*, §8.6 (Aug. 1988); see also *Cammer*, 711 F. Supp. at 1276.

“A market in which prices always ‘fully reflect’ available information is called ‘efficient.’”

“Efficient Capital Markets: A Review of Theory and Empirical Work,” by Eugene Fama, *Journal of Finance*, 1970, cited in *Cammer*, 711 F. Supp. at 1280.

36. Professor Fama elaborated and refined his definition in a *Halliburton II* amici curiae that he co-authored:

“But economists do *not* generally disagree about whether market prices respond to new material information. In particular, there is little doubt that the stock price will increase reasonably promptly after favorable news about a company is released and decline after unfavorable news. Our conclusion that prices generally move reasonably promptly in the predicted direction in response to unexpected material public information (favorable or unfavorable) is perfectly consistent with the view that there are sometimes anomalies in the way markets process information and that bubbles can exist.”

Brief of Financial Economists as Amici Curiae in Support of Respondents, *Halliburton Co. and David Lesar v., Erica P. John Fund, Inc.*, FKA Archdiocese of Milwaukee Supporting Fund, Inc., 5 February 2014, p. 3 (emphasis in original).

37. The Supreme Court in the *Basic v. Levinson* decision focused on the same important characteristic at the heart of these definitions of market efficiency:

“The fraud on the market theory is based on the hypothesis that, in an open and developed securities market, the price of a company’s stock is determined by the available material information regarding the company and its business”

***Basic v. Levinson*, 485 U.S. 224, 243, 108 S. Ct. 978, 988-89, 99 L. Ed. 2d 194 (1988); see also *Cammer*, 711 F. Supp. at 1276.**

38. The 2013 *Amgen* decision defined market efficiency similarly:

“The fraud-on-the market premise is that the price of a security traded in an efficient market will reflect all publicly available information about a company”

***Amgen Inc. v. Conn. Ret. Plans & Trust Funds*, U.S., 133 S. Ct. 1184, 1190 (2013), 185 L. Ed. 2d 308 (2013).**

39. In its 2014 *Halliburton II* decision, the Supreme Court addressed the cause and effect relationship at the center of market efficiency thusly:

“Even the foremost critics of the efficient-capital-markets hypothesis acknowledge that public information generally affects stock prices. ... Debates about the precise *degree* to which stock prices accurately reflect public information are thus largely beside the point. ‘That the . . . price [of a stock] may be inaccurate does not detract from the fact that false statements affect it, and cause loss,’ which is ‘all that *Basic* requires.’”

***Halliburton Co. v. Erica P. John Fund, Inc.*, 134 S. Ct. 2398, 2410, 189 L. Ed. 339 (2014) (“*Halliburton II*”) (emphasis in original).**

40. An efficient market, as defined by *Cammer*, *Basic*, *Amgen*, *Halliburton II*, Bromberg and Lowenfels, and Fama, is a market in which available information is rapidly incorporated into the price of a security such that the trading price reflects all available information. As these cases and academic work recognize, market efficiency is relevant to a securities case as it addresses the question of whether false information (*e.g.*, in the form of an alleged misrepresentation or omission) would likely have impacted the prices at which investors bought and sold, and which was therefore relied upon.

A. The *Cammer* Factors

41. The *Cammer* opinion lays out five factors that would indicate whether the market for a security is efficient. As described below, economic rationales support each factor as an indicator of market efficiency. The five factors are: 1) trading volume, 2) coverage by securities analysts, 3) number of market makers, 4) eligibility for S-3 registration, and 5) empirical evidence that the security price reacts to new, company-specific information.
42. Empirical research has confirmed that volume, number of market makers, and analyst coverage are indicative of market efficiency:

“Consistent with the efficiency indicators used recently by the courts, the inefficient firms have lower mean trading volume, fewer market makers, lower analyst following, and lower institutional ownership (number and percentage) than efficient firms.”

“The Fraud-on-the-Market Theory and the Indicators of Common Stocks’ Efficiency,” by Brad M. Barber, Paul A. Griffin, and Baruch Lev, *Journal of Corporation Law*, 1994, p. 302.

43. Barber, et al., also found that high institutional ownership was indicative of market efficiency.
44. With respect to the empirical factor, Barber, et al. used empirical tests as the standard for market efficiency by which to judge the probative value of the other variables. Consequently, they acknowledge the importance of the empirical factor.
45. Consistent with financial economic theory and empirical research, the language used by the *Cammer* court describes the factors not as five *necessary* factors, but rather as properties that indicate the degree to which the market for a security is expected to be efficient:

“There are several different characteristics pertaining to the markets for individual stocks which are probative of the degree to which the purchase price of a stock should reflect material company disclosures.”

***Cammer*, 711 F. Supp. at 1283.**

46. The *Cammer* opinion describes the nature of the five factors as follows:

“There are several types of facts which, if alleged, might give rise to an inference that Coated Sales traded in an efficient market. It is useful to set forth an explanation of how the existence of such facts would cause the understanding that disclosed company information (or misinformation) would be reflected in the company’s stock price, the underpinning of the fraud on the market theory. *Peil, supra*, 806 F.2d at 1160.”

***Id.* at 1285-86.**

“First, plaintiffs could have alleged there existed an average weekly trading volume during the class period in excess of a certain number of shares.”

***Id.* at 1286.**

“Second, it would be persuasive to allege a significant number of securities analysts followed and reported on a company’s stock during the class period.”

Id.

“Third, it could be alleged the stock had numerous market makers.”

Id.

“Fourth, as discussed, it would be helpful to allege the company was entitled to file an S-3 Registration in connection with public offerings...”

***Id.* at 1287.**

“Finally, it would be helpful to a plaintiff seeking to allege an efficient market to allege empirical facts showing a cause and effect relationship between unexpected corporate events or financial releases and an immediate response in the stock price.”

Id.

B. The *Krogman* Factors

47. In addition to the five *Cammer* factors that indicate market efficiency, the district court in *Krogman v. Sterritt*, 202 F.R.D. 467 (N.D.Tex. 2001), concluded that three additional factors were also indicative of market efficiency.
48. These additional factors, the *Krogman* factors, are: 1) the company's market capitalization, 2) the stock's float, and 3) the typical bid-ask spread.
49. Market capitalization is the total value of all outstanding shares. It equals the number of shares outstanding times the price per share. Reasonably, the larger the market capitalization, the more prominent and well known the company will be. Larger companies tend to attract more analyst and news media coverage, and gain the attention of greater numbers of investors, including very large institutional investors. All of these characteristics, which accompany a large market capitalization, promote market efficiency.
50. The stock's float is the number of shares outstanding, less shares held by insiders and affiliated corporate entities. It is generally the number of shares available for trading by outside investors in the open market. Float is highly correlated with market capitalization, but it focuses on the shares available for trading rather than all outstanding shares. Stocks with large levels of float tend to trade more actively, attract more analyst and news media coverage, and garner the attention of greater numbers of investors, including large institutional investors. All of these characteristics, which accompany a high float level, promote market efficiency.
51. The bid-ask spread is the difference between the price at which market makers are offering to buy a security and the price at which they are offering the security for sale. If a security is actively traded and information about the security is readily available, the bid-ask spread will tend to be narrow. Moreover, a narrow bid-ask spread makes trading in the security

less costly for investors, and thereby tends to attract greater interest, greater coverage, and greater volume, which in turn are factors that are generally considered to promote market efficiency.

VI. EFFICIENCY OF THE MARKET FOR FREDDIE MAC COMMON STOCK

52. To assess whether the market for Freddie Mac common stock was efficient during the Class Period, I analyzed the market for, and behavior of, Freddie Mac common stock, focusing on the factors that are generally accepted to be indicative of market efficiency for a publicly-traded security. Because Dr. Hallman and Dr. Bajaj both submitted reports in this matter, the conclusions presented in this report are made with references to the Hallman Report and with consideration given to Dr. Bajaj's criticisms of the Hallman Report, as well as Dr. Bajaj's more recent analysis in the Bajaj Allergan Report.

A. Trading Volume

53. Throughout the Class Period, Freddie Mac common stock traded regularly and actively. On average, 4.0 million shares changed hands daily (data obtained from CRSP). Freddie Mac common stock trading data are presented in Exhibit-4.

54. In addition to average daily trading volume, another volume metric to consider in determining market efficiency is the percentage of outstanding shares that turn over each week. During the Class Period, the average weekly trading volume of Freddie Mac common stock was approximately 19.9 million shares, or 3.0% of shares outstanding. This turnover figure is estimated by dividing the average daily trading volume by the average number of shares outstanding, and multiplying by 5, which is the number of trading days in a typical week. This level of trading activity is similar to that presented in the Hallman

Report, ¶11. The slight difference between my and Dr. Hallman's results appears to be due to the use of different data sources. This level of trading activity is above levels accepted by courts as being indicative of market efficiency for common stock. *Cammer*, 711 F. Supp. at 1286. In the case of the common stock of Coated Sales, Inc., the *Cammer* court cited the conclusion of Alan R. Bromberg and Lewis D. Lowenfels that "weekly trading of 2% or more of the outstanding shares would justify a strong presumption that the market for the security is an efficient one; 1% would justify a substantial presumption." *Id.*, at 1293. The trading volume for Freddie Mac common stock during the Class Period was above the threshold for a strong presumption of market efficiency.

55. Not only is this level of trading activity above levels accepted by courts as being indicative of market efficiency (*Cammer*, 711 F. Supp. At 1286), Dr. Bajaj agrees that such "active trading volume indicates market efficiency." *See Cammer*, 711 F. Supp. at 1286; Bajaj Allergan Report ("Thus, the active trading of Allergan stock is supportive of a finding that Allergan stock traded in an efficient market during the Class Period.").
56. Both in terms of average daily trading volume and percentage of outstanding shares traded weekly, the market for Freddie Mac common stock was active. Consistent with the *Cammer* opinion, economic theory, and empirical research, the active trading volume in Freddie Mac common stock is strong evidence of the efficiency of the market for Freddie Mac common stock over the course of the Class Period.

B. Analyst Coverage and Other Avenues of Information Dissemination

1. Analyst Coverage

57. Securities analysts disseminate and interpret information about the companies they cover. They conduct research and provide valuation opinions, helping market participants acquire

relevant information and understand the implications of that information for valuation and investment decisions. Consequently, securities analysts facilitate the flow of information and the digestion of information within the marketplace. These functions promote market efficiency.

58. Freddie Mac was the subject of broad analyst coverage throughout the Class Period. From Thomson Reuters, I obtained analyst reports published on Freddie Mac during the Class Period by 11 different firms: Bear Stearns, Credit Suisse, Fox-Pitt, JP Morgan, Lehman Brothers, Morgan Stanley, NAB Sydney, Piper Jaffray, Prudential, UBS, and Unicredit.
59. Transcripts of Freddie Mac's conference calls conducted during the Class Period reveal that at least 10 additional firms also followed Freddie Mac: Bank of America, Charter Bank, Citigroup, FBR, Friedman, Goldman Sachs, HSBC, KBW, Miller Tabak, and Portales Partners.
60. Consequently, at least 21 analyst firms followed the Company during the Class Period.
61. Between 1 August 2006 and 20 November 2007, there were at least 133 analyst reports issued regarding Freddie Mac. Coverage by 21 analyst firms, and the issuance of at least 133 analyst reports, is considered broad coverage. Barber, et al., [1994] found that coverage by one or two analysts strengthened the presumption of efficiency for a publicly traded stock. See "The Fraud-on-the-Market Theory and the Indicators of Common Stocks' Efficiency," by Brad M. Barber, Paul A. Griffin, and Baruch Lev, *Journal of Corporation Law*, 1994, p. 302.
62. Contrary to his testimony in the current case, in a more recent report, Dr. Bajaj agrees that "extensive analyst coverage indicates market efficiency." Bajaj Allergan Report, p. 11.

63. Consistent with the *Cammer* opinion, financial economic principles, published empirical research, as well as Dr. Bajaj's recent testimony (Bajaj Allergan Report, ¶¶23-26), the broad coverage of Freddie Mac by professional securities analysts is evidence of the efficiency of the market for Freddie Mac common stock during the Class Period. While Dr. Hallman identified 17 analysts, my access to additional databases produced an additional four analysts who covered Freddie Mac (Hallman Report, ¶12).

2. Institutional Ownership and Buy-Side Analysis

64. FactSet provides data on institutional ownership of Freddie Mac common stock. The data are compiled from the form 13-F filings that major investment institutions are required to submit to the SEC. Major institutions are defined as firms or individuals that exercise investment discretion over the assets of others in excess of \$100 million. Large investment firms often employ financial analysts who conduct their own research on the stocks they buy. According to the FactSet data, 616 unique major institutions owned Freddie Mac common stock during at least one of the quarterly reporting dates within the Class Period. Additional institutions may have done so on other than quarterly reporting dates. The widespread institutional ownership further supports a finding that the market for Freddie Mac common stock was an efficient market during the Class Period.

3. News Coverage

65. The news media also facilitate the flow of material information to the marketplace, thereby promoting market efficiency. In the case of Freddie Mac, such coverage was extensive. A Factiva database search established that at least 2,900 articles were published about the Company during the Class Period. This is based on a Factiva search in "All sources Or

Major News and Business Sources All Sources” for articles published during the Class Period where “Freddie Mac” was the “Company” search field parameter.

66. The articles obtained from Factiva include published news articles and press releases. Information about Freddie Mac also emerged throughout the Class Period in the form of SEC filings, conference calls, and public investor presentations.
67. Therefore, during the Class Period, information about Freddie Mac was readily available to market participants, provided by news media, analysts, and various other sources. This extensive news coverage is further evidence of the efficiency of the market for Freddie Mac common stock.

C. Market Makers and Listing on the New York Stock Exchange

68. The number of market makers is one of the factors the *Cammer* court determined indicates market efficiency. Market makers are financial intermediaries who trade in a particular security, standing ready to buy and sell with individual investors, institutions, and other market makers. A large number of market makers implies that many market participants are trading that particular stock, which generally provides a high degree of liquidity and a narrower bid-ask spread. With a large number of market makers, it is generally easy for investors to execute trades in a timely fashion and with reasonable transaction costs.
69. The subject company in the *Cammer* case, Coated Sales, Inc., was listed on the NASDAQ, an over-the-counter market consisting of multiple competing market makers, using electronic systems to display quotes and execute trades.
70. The *Cammer* court’s understanding that the market-making infrastructure of a stock market is indicative of its efficiency, or lack thereof, makes the fact that Freddie Mac common stock traded on the NYSE during the Class Period highly relevant. The NYSE is one of the

most renowned, most liquid, and most efficient forums for trading stocks in the world. Stocks on the NYSE are traded under the supervision of a lead market maker or “Designated Market Maker” (“DMM”), formerly known as a specialist. *See* “Fact Sheet; Designated Market Makers,” NYSE Euronext, 2012. DMMs are responsible for maintaining a fair and orderly market for each security to which they are assigned. *See* “Organization and Functioning of Securities Markets,” by Frank Reilly and Keith Brown, in *Equity and Fixed Income CFA Program Curriculum*, vol. 5, Pearson Custom Publishing, 2008.

71. In fact, citing Bromberg and Lowenfels, the *Cammer* court explicitly acknowledged the importance of an NYSE listing and the implications of such a listing for market efficiency.

“We think that, at a minimum, there should be a presumption – probably conditional for class determination – that certain markets are developed and efficient for virtually all the securities traded there: the New York and American Stock Exchanges, the Chicago Board Options Exchange and the NASDAQ National Market System.”

***Cammer*, 711 F. Supp. at 1292 (quoting Bromberg & Lowenfels, *Securities Fraud and Commodities Fraud*, §8.6 (1988)).**

72. At the time of the *Cammer* opinion, the NYSE and NASDAQ were distinctly separate exchanges. NASDAQ market makers did not make markets for NYSE-listed stocks such as Freddie Mac. However, since that time, the stock markets have evolved dramatically, and beginning in April 2005, NASDAQ enabled trading in most NYSE-listed stocks through its market maker structure (*See* “Nasdaq To Enable Customers To Trade NYSE Stocks,” *Reuters*, 28 March 2005). This NASDAQ market making activity would be in addition to the principal market for listed stocks on the NYSE.
73. Typically, I obtain market maker data from either Bloomberg or CRSP. However, as of the writing of this report, neither data sources had market making data available for Freddie

Mac during the Class Period. Nonetheless, according to analyst reports published during the Class Period, there were at least seven institutions that made a market for Freddie Mac securities, including such well known firms as: Bear Sterns, Credit Suisse, Lehman Brothers, Morgan Stanley, Piper Jaffrey, UBS, and Unicredit. Reports published by these firms state that these firms made markets in Freddie Mac securities.

74. Contrary to his prior testimony in this case, in a more recent report, Dr. Bajaj agrees that market makers indicate market efficiency. Bajaj Allergan Report, ¶27.
75. The facts that it traded on the NYSE and had numerous market makers are strong evidence that Freddie Mac common stock traded in an efficient market throughout the Class Period. Freddie Mac's listing on the NYSE gave its stock access to a highly developed network of brokers with its market overseen by the NYSE DMM. These facts are compelling evidence of the efficiency of the market for Freddie Mac common stock.

D. S-3 Registration Eligibility

76. A company is eligible for S-3 registration when, among other things, it has filed Exchange Act reports for a specified length of time and has outstanding float above a certain sizable value. At the time of the *Cammer* opinion, the conditions for S-3 registration were that a company had filed financial reports with the SEC for 36 months, and had outstanding float over \$150 million held by non-affiliates, or \$100 million of such float coupled with annual trading volume exceeding 3 million shares.
77. In 1992, the SEC changed its requirements for S-3 registration eligibility to 12 months of filings and at least \$75 million of float. Since 2007, the SEC has allowed companies with less than \$75 million of float to file an S-3 registration so long as the company has been filing financial reports for at least a year, has "a class of common equity securities listed

and registered on a national securities exchange, and the issuers do not sell more than the equivalent of one third of their public float in primary offerings over any period of 12 calendar months.” See, “Revisions To The Eligibility Requirements For Primary Securities Offerings On Forms S-3 And F-3,” SEC Release No. 33-8878, 19 December 2007.

78. Despite the fact that the \$75 million float requirement has been loosened, courts continue to focus on the \$75 million float benchmark when analyzing this *Cammer* factor. *See, e.g., Nguyen v. Radiant Pharm. Corp.*, 287 F.R.D. 563, 573 (C.D. Cal. 2012).
79. The *Cammer* court noted that S-3 registration eligibility is indicative of market efficiency because the filing requirement ensures that financial data are available to market participants, and the “public float” requirement indicates that many market participants would have examined the information. *Cammer*, 711 F. Supp. at 1284-85.

“Proposed Form S-3 recognizes the applicability of the efficient market theory to the registration statement framework with respect to those registrants which usually provide high quality corporate reports, including Exchange Act reports, and whose corporate information is broadly disseminated, because such companies are widely followed by professional analysts and investors in the market place. Because of the foregoing observations made by the SEC, the existence of Form S-3 status is an important factor weighing in favor of a finding that a market is efficient.”
***Cammer*, 711 F. Supp. at 1284-85.**

“The ‘public float’ aspect of the Form S-3 requirements ensures that enough investors have in fact read the previously filed document.”
***Id.* at 1285.**

“Again, it is the number of shares traded and value of shares outstanding that involve the facts which imply efficiency.”
***Id.* at 1287.**

80. Freddie Mac satisfied both the original and revised float conditions for S-3 registration throughout the entire Class Period. Freddie Mac's average float during the Class Period of \$42.1 billion exceeded the threshold requirement for S-3 registration by a wide margin.
81. Due to the Company's status as a GSE, it was not required to and did not file Exchange Act reports with the SEC, such as the Form 10-Q or the Form 10-K during the Class Period. However, regularly throughout the Class Period, Freddie Mac did issue to its shareholders quarterly and annual financial reports containing essentially the same information that would be included in the Form 10-Q and Form 10-K Exchange Act reports. Therefore, financial information about Freddie Mac was readily and consistently available to market participants.
82. For example, the Q1 2007 quarterly financial report contained the following introductory language, describing the Company's practice of providing financial information to the public on a regular and consistent basis:

"This Information Statement Supplement contains important financial and other information about Freddie Mac and supplements our Information Statement and Annual Report to Stockholders for the fiscal year ended December 31, 2006, dated March 23, 2007, or 2006 Information Statement. Our 2006 Information Statement is supplemented periodically. All available supplements including this Information Statement Supplement should be read together with our 2006 Information Statement. We also provide information about the securities we issue in the offering circular for each securities program and any supplement for each particular offering. You can obtain copies of our 2006 Information Statement, offering circulars, available supplements, financial reports and other similar information by visiting our website (www.freddiemac.com) or by writing or calling us at..."

"Freddie Mac Financial Report for the Three Months Ended March 31, 2007," dated 14 June 2007.

83. While Freddie Mac was not technically eligible for S-3 registration, the Company certainly possessed the float and information provision characteristics underlying why S-3 eligibility is indicative of market efficiency.

E. Krogman Factors

84. In addition to evaluating market efficiency using the *Cammer* factors, I also examined Freddie Mac common stock and its market with respect to the three additional *Krogman* factors.

1. Market Capitalization

85. During the Class Period, the market capitalization of Freddie Mac averaged \$42.1 billion. Using averaged month-end data from CRSP for 31 August 2006 through 31 October 2007, I grouped public companies into deciles, so that the 1st decile contains the largest 10% of all public companies listed on the NYSE, American Stock Exchange, NASDAQ, and ARCA while the 10th decile contains the smallest 10%. Freddie Mac's market capitalization during the Class Period put it in the 1st decile of U.S. companies by size – meaning that Freddie Mac was larger than at least 90% of all other publicly-traded companies in the United States.
86. Contrary to his prior testimony in this case, in a more recent report, Dr. Bajaj agrees that “large market capitalization indicates market efficiency.” Bajaj Allergan Report, ¶32.
87. Consistent with the *Krogman* opinion, Freddie Mac's sizeable market capitalization throughout the Class Period is further evidence of the efficiency of the market for Freddie Mac common stock.

2. Float

88. As mentioned above, Freddie Mac's common stock float averaged \$42.1 billion during the Class Period. While float excludes shares held by insiders and affiliated corporate entities, Freddie Mac's float was still larger than the total market capitalization of at least 90% of all other publicly-traded companies in the U.S. This calculation is based upon averaged month-end data from CRSP for 31 August 2006 through 31 October 2007. Freddie Mac's share data were obtained from Company filings.
89. The size of Freddie Mac's float indisputably satisfies the second *Krogman* factor for market efficiency.
90. Contrary to his prior testimony in this current case, in a more recent report Dr. Bajaj agrees that a "large float indicates market efficiency." Bajaj Allergan Report, ¶33.
91. Float can also be analyzed as a percentage of total shares outstanding, as well as in absolute share and value terms. On average during the Class Period, there were 672.0 million shares in Freddie Mac's float and 672.2 million shares outstanding, resulting in an average float of 99.98% of shares outstanding.
92. The magnitude of Freddie Mac's float is indicative of the efficiency of the market for its stock during the Class Period and is consistent both with Dr. Hallman's findings and with recent testimony provided by Dr. Bajaj. Hallman Report, ¶32 and Bajaj Allergan Report, ¶33.

3. Bid-Ask Spread

93. I obtained from CRSP the daily closing bid and ask quotes for Freddie Mac common stock during the Class Period. I measured the percentage bid-ask spread as the difference between the bid and ask quotes, divided by the average of the bid and ask quotes, which is

the standard way of measuring percentage bid-ask spreads in the finance literature. See, “Price Reversals, Bid-Ask Spreads, and Market Efficiency,” by Allen B. Atkins and Edward A. Dyl, *Journal of Financial and Quantitative Analysis*, Vol. 25, No. 4, 1990, pp. 535-547. Exhibit-4 presents Freddie Mac’s bid-ask spread data.

94. The average bid-ask spread for Freddie Mac common stock over the course of the Class Period was 0.12%. See also, Hallman Report, ¶31. By comparison, the average month-end bid-ask spread over the course of the Class Period for all stocks in the CRSP database was 0.60% (based on averaged month-end data from CRSP for 31 August 2006 through 31 October 2007). Freddie Mac’s bid-ask spread was therefore narrower than the mean level among all other CRSP stocks – which comprise stocks traded on the NYSE, American Stock Exchange, NASDAQ, and ARCA.
95. In dollar terms, Freddie Mac’s bid-ask spread during the Class Period averaged \$0.07 per share per share. For all stocks in the CRSP database, the average bid-ask spread was \$0.12 during the Class Period.
96. Contrary to his prior testimony in this case, in a more recent report Dr. Bajaj agrees that a “narrow bid-ask spread indicates market efficiency.” Bajaj Allergan Report, ¶34.
97. The average bid-ask spread in the market for Freddie Mac common stock over the course of the Class Period was well below the typical bid-ask spreads exhibited by other publicly-traded stocks in the United States. Freddie Mac’s narrow bid-ask spread supports a conclusion of market efficiency.

VII. EMPIRICAL EVIDENCE OF MARKET EFFICIENCY FOR FREDDIE MAC COMMON STOCK

98. Of the five *Cammer* factors, the empirical factor was cited by the *Cammer* court as “one of the most convincing ways to demonstrate efficiency”:

“As previously noted, one of the most convincing ways to demonstrate efficiency would be to illustrate, over time, a cause and effect relationship between company disclosures and resulting movements in stock price.”
***Cammer*, 711 F. Supp. at 1291.**

99. The “convincing” nature of the empirical factor is justified by economic principles, in that this factor provides a direct demonstration of market efficiency, whereas the other four factors are structural indicators of market efficiency. In addition to a traditional event study, as recent economic work and acceptance by courts acknowledges, other econometric tests may be used to satisfy the fifth *Cammer* factor. As I explained in my December Declaration, courts have given more consideration towards collective empirical tests for demonstrating the fifth *Cammer* factor. Therefore, I conducted two sets of empirical tests of the efficiency of the market for Freddie Mac common stock.
100. The first empirical test was an event study that investigated whether the market for Freddie Mac common stock was efficient specifically with respect to the particular information at issue in this case. Significant reactions to disclosures of information correcting the alleged misrepresentations and omissions in this case indicate market efficiency, not only generally, but also specifically with respect to the information at issue in this case. This approach is particularly appropriate where, as here, it appears that the alleged misrepresentations were confirmatory of market expectations, and were therefore unlikely to elicit any statistically significant common stock returns.

101. The second empirical test examined collectively a broad set of events that occurred over the course the Class Period. As described in greater detail below, for the collective empirical study, the events tested during this estimation period were dates on which both the *New York Times* (“NYT”) and *Wall Street Journal* (“WSJ”) (collectively, “WSJ/NYT News Event Dates”) published articles about Freddie Mac. This screen identifies dates on which important news regarding Freddie Mac transpired. If the WSJ/NYT News Event Dates more frequently exhibited statistically significant stock returns than all other days, this finding would indicate a cause and effect relationship between the emergence of important information and changes in the stock price, which would be compelling empirical proof of market efficiency.

A. Event Study Test of Market Efficiency

102. The event study is the paramount tool for testing market efficiency, as renowned financial economist and Nobel laureate Eugene Fama attests:

“The cleanest evidence on market-efficiency comes from event studies, especially event studies on daily returns. When an information event can be dated precisely and the event has a large effect on prices, the way one abstracts from expected returns to measure abnormal daily returns is a second-order consideration. As a result, event studies give a clear picture of the speed of adjustment of prices to information.”

“Efficient Capital Markets: II,” by Eugene F. Fama, *Journal of Finance*, 1991, p. 1607.

103. Event study analysis is one of the most commonly used analytic methodologies employed by finance researchers. Campbell, Lo, and MacKinlay [1997] present an excellent description and examples of the methodology and write about how it is generally accepted and widely used in academic research. Chapter 4 of *The Econometrics of Financial Markets*, by John Y. Campbell, Andrew W. Lo, and A. Craig MacKinlay, Princeton

University Press, 1997. Crew, et al., [2012] write about how the methodology is generally accepted and widely used in forensic applications. “Federal Securities Acts and Areas of Expert Analysis,” by Nicholas I. Crew, et al., in Chapter 24 of the *Litigation Services Handbook; The Role of the Financial Expert*, 5th ed., edited by Roman L. Weil, Daniel G. Lentz, and David P. Hoffman, John Wiley & Sons, Inc., 2012.

104. An event study measures how much a stock price rises or falls in response to new, company-specific information. As part of the event study, statistical regression analysis determines how much of a stock price change is explained by market and peer group factors, rather than company-specific information, so that those influences can be statistically factored out. The portion of a stock price change that cannot be attributable to market and peer group factors is called the residual stock price movement or “residual return.” The event study isolates the residual return and also tests whether the residual return can reasonably be explained as merely a random fluctuation.
105. If the stock return following an event is statistically significant, this finding means that the stock price movement cannot be attributed to market and peer group factors, or to random volatility, but rather was caused by the new, company-specific information. Such proof of a cause and effect relationship between the dissemination of information and a reaction in the stock price establishes market efficiency.

1. A Caveat About Non-Significant Stock Price Movements

106. It is important to note that an event study tests the joint hypothesis that the security trades in an efficient market and that the valuation impact of the information disseminated on an event date is of such a large magnitude as to exceed the threshold for statistical significance. A finding of statistical significance indicates market efficiency, but a finding of non-

significance does not necessarily establish inefficiency as a modest non-significant stock price reaction may be the appropriate and efficient stock price reaction to a particular event. (“Event Studies in Securities Litigation: Low Power, Confounding Effects, and Bias,” by Alon Brav and J. B. Heaton, 93 WASH. U. L. REV. 583 (2015).)

107. For example, if a company reports earnings that are in-line with the expectations of analysts and investors, even though the announcement would be important, the mix of information may not have changed sufficiently on that date to elicit a statistically significant stock price reaction. In their article, Brav and Heaton [2015] provide an example of how information can be economically significant without being above the threshold for statistical significance. Based on their study, the authors note that a fraud of \$700 million would not be expected to have a statistically significant price impact on a \$42 billion company. To deem this information immaterial, however, would be “a proposition with which many would disagree.” (“Event Studies in Securities Litigation: Low Power, Confounding Effects, and Bias,” by Alon Brav and J. B. Heaton, 93 WASH. U. L. REV. 583 (2015), p. 602.) That is, a \$700 million effect would be economically significant, though it may not appear statistically significant. In such a case, a non-statistically significant price reaction would not indicate inefficiency or lack of price impact.
108. Similarly, if an important announcement is made alongside countervailing confounding news that impacts the stock price in the opposite direction, one might not reasonably expect this mix of new information to cause a statistically significant stock price reaction. In these examples, a non-statistically significant stock price movement, or even no movement at all, may be the appropriate stock price reaction. In such cases, the event study finding that the stock return was non-significant would not indicate inefficiency.

109. Similarly, when a company deceives analysts and investors by concealing important information, the effect of the concealment would generally not be a significant stock price movement at the time of the concealment and over its duration. The concealment would maintain the mix of information as it previously was, so the appropriate price reaction would be a maintenance of the price level where it previously was. (“Event Studies in Securities Litigation: Low Power, Confounding Effects, and Bias,” by Alon, Brav and J. B. Heaton, 93 WASH. U. L. REV. 583 (2015), p. 602.)
110. Therefore, ideal candidate events for inclusion in a market efficiency event study would generally be events on which company-specific information was released that is new, unexpected, not confounded by major countervailing news, and is of such import as to reasonably be expected to elicit a stock price reaction.

2. Selection of Allegation-Related Event

111. The *Cammer* court recognized the importance of the specific information allegedly misrepresented that is the subject of the litigation:

“The central question under the fraud on the market theory is whether the stock price, *at the time a plaintiff effected a trade*, reflected the ‘misinformation’ alleged to have been disseminated.”

Cammer, 711 F. Supp. at 1282 (emphasis in original).

112. By focusing an event study on the disclosure of the information (or risk materialization date) related to the allegations in the Complaint, one is able to ascertain whether the market for Freddie Mac common stock was efficient, not only generally, but also with respect to the particular information at issue in this case. Consequently, the empirical behavior of Freddie Mac common stock following such a disclosure (or on risk materialization dates)

is important for determining whether the market for Freddie Mac common stock was efficient for purposes of the fraud-on-the-market principle.

113. In a recent report, Dr. Bajaj applied an event selection methodology similar to mine for an event study testing market efficiency. Bajaj Allergan Report, ¶46.
114. An event study testing market efficiency does not require a comprehensive identification of all events during the Class Period, including all of those cited in the Complaint, on which new material allegation-related information became known. An objective screen may capture only some of those events, or in this case, one such event.
115. Applying these objective criteria (disclosure of allegation-related information; information of such magnitude as to be reasonably expected to elicit a significant stock price reaction if the market is efficient) identifies the allegation-related event that is most suitable for a market efficiency event study in this matter. A review of publicly-reported news and events during the Class Period, and a review of the Complaint identify one disclosure event during the Class Period on which new, Company-specific information related to the alleged misrepresentations and omissions was disseminated, which, based on valuation principles, would reasonably be expected to elicit a stock price reaction over the threshold for statistical significance.
116. I identified 20 November 2007 as an allegation-related event that is most appropriate for inclusion in the event study. That day, Freddie Mac announced financial results for 3Q 2007 and reported losses of \$2.0 billion, or \$3.29 per share. *See*, “Freddie Mac Financial Report for the Three and Nine Months Ended September 30, 2007,” dated 20 November 2007, p. 5. In the financial report, the Company disclosed that the increased losses for the quarter were “primarily due to a higher provision for credit losses, losses on our derivative

portfolio and other credit-related items.” Following the disclosure, analysts’ reactions were decidedly negative:

“After FNM’s poor 3Q07 results two weeks ago, we downgraded the GSEs and lowered our FRE estimates in anticipation of similarly weak results. But in what is becoming the norm for mortgage companies, FRE’s results were worse than expected. FRE reported a 3Q07 GAAP loss per share of \$3.29, and an estimated operating loss of (\$0.43), well below our estimate of \$0.43 per share of earnings. Mgmt had warned that widening spreads could create a GAAP loss, but the new disclosure of even higher credit costs than FNM had revealed triggered heavy selling. Furthermore, the news of a potential dividend cut and capital raise further heightened investor concern.”

“‘08 Estimate Using Base Case Now \$2.28,” by Bruce Harting and Mark Devries, Lehman Brothers, analyst report, 21 November 2007, p. 1.

“The next significant event will be the company’s capital raise. Management indicated that it intends to minimize the damage to common shareholders. Given excess capital of only \$600 million at 9/30 and expected losses in Q4 at least in line with Q3’s \$2 billion loss, we estimate the company may seek to raise \$3-5 billion. Early next year when the 30% surplus capital requirement is lifted, there should be a substantial capital excess. Until then, though the company’s ability to provide liquidity and support the mortgage market may be limited.”

“GAAP Loss Reflects Reduced Market Liquidity and Is Restricting Liquidity As Well,” by David Hochstim and Michael Nannizzi, Bear Stearns, analyst report, 20 November 2007, p. 1.

3. Selection of Collective Events: WSJ/NYT News Event Dates

117. I obtained a total of 83 WSJ/NYT articles from the Factiva database using the following search parameters: Date Range: 31 July 2006 to 21 November 2007; Source: “*Wall Street Journal*” OR “*The New York Times*”; Company: Freddie Mac; and Free Text Search: “Freddie Mac”. There were 70 articles published in the *Wall Street Journal* and 13 articles published in *The New York Times* during this period. Subsequently, I reviewed the dates on which each article was published and identified the subject matter of each article to identify news events which were reported in both the *Wall Street Journal* and *The New*

York Times. There were nine such WSJ/ NYT News Event Dates. For each of the nine events I identified when the subject matter of the WSJ/ NYT News Event Dates was initially known by market participants by reviewing all news articles published within three days of the WSJ/ NYT News Event Dates.

118. Exhibit-5 presents the effective testing dates of the nine WSJ/ NYT News Event Dates thusly identified for purposes of the collective test discussed below.

4. Isolating the Impact of Company-Specific Information

119. Event study analysis determines how much of the Company's stock return following each of the events was driven by Company-specific information as opposed to market and peer group factors.
120. The method, which is generally accepted and widely used in econometric modeling, involves running a regression to determine how the price of Freddie Mac common stock typically behaved in relation to the overall stock market and its peer group, and then using the regression model to determine how much of each event day's actual return is explained by the market and peer group factors ("the explained return").
121. The explained return is then subtracted from the actual return to isolate the residual return, which is the stock's return after controlling for market and peer group effects.
122. I ran a regression modeling the return of Freddie Mac common stock as a function of: 1) a constant term, 2) the returns of the overall stock market, and 3) a peer group index return.
123. For the overall stock market factor I used the CRSP NYSE/ AMEX/ NASDAQ/ ARCA Market Index (the "Market Index"), which is a generally accepted and widely used measure of the overall stock market performance. The Market Index appropriately incorporates payment of dividends by the constituent companies.

124. For the peer group factor, I used the same peer index that Freddie Mac identified as representative of its peers. In its 2006 Annual Report, Freddie Mac compared its performance to the S&P 500 Financial Sector Index (the “Peer Index”). I am aware that Freddie Mac was a constituent of the Peer Index during the Class Period. To be conservative for purposes of analyzing market efficiency for Freddie Mac common stock, I did not remove Freddie Mac from the Peer Index and therefore did not control for the effect the Company may have had on the Peer Index.
125. Freddie Mac’s stock prices, dividends, trading volume, and returns are shown in Exhibit-4. Exhibit-6 presents Market Index and Peer Index data.
126. In the Bajaj Report, Dr. Bajaj identified a period of “heightened market-wide volatility” from 9 August 2007 to 20 November 2007. To determine whether the relationship between Freddie Mac common stock, the Market Index, and the Peer Index was different during the periods 1 August 2006 through 8 August 2007 (“Estimation Period 1”) and 9 August 2007 to 20 November 2007 (“Estimation Period 2”), I performed a Chow test. A Chow test is used to identify structural breaks in regression model relationships. The Chow test result was statistically significant at the 95% confidence level, indicating that there was a structural change in the regression relationship. (See, for example, chapter 8 of *A Guide to Econometrics*, by Peter Kennedy, 6th edition, Blackwell Publishing, 2008).
127. Therefore, I ran regressions on daily returns covering the entire Class Period divided into the two separate estimation periods: Estimation Period 1 and Estimation Period 2. I used dummy variables to control for potentially abnormal returns on the WSJ/NYT News Event Dates, which include the allegation-related event. Using dummy variables to control for potentially atypical events in the estimation period, especially when those dates are the

subject of the event study analysis, so that the model parameters properly reflect typical stock price movements, is a widely used and generally accepted methodology, as noted in the academic and finance literature. *See*: Aktas, et al. [2007]; Binder [1985]; Box and Tiao [1975]; Larcker, et al. [1980]; Malatesta [1986]; and Thompson [1985].

128. The choice of using the Class Period for the regression estimation periods is also a widely used and generally accepted methodology in event study analysis.

“Three general choices for the placement of an estimation window are before the event window, surrounding the event window, and after the event window.”

“Materiality and Magnitude: Event Studies in the Courtroom,” by David I. Tabak and Frederick C. Dunbar in *Litigation Services Handbook, The Role of the Financial Expert*, 3rd ed., edited by Roman L. Weil, Michael J. Wagner, and Peter B. Frank, John Wiley & Sons, Inc., 2001, p. 19.5.

129. All returns used in the regressions are logarithmic returns – that is, the natural logarithm of the ratio of the current day’s closing price plus dividends to the previous day’s closing price. Logarithmic returns are commonly used in event studies and equity analysis. Analysts and researchers generally use logarithmic returns instead of percent price changes because of various computational advantages. The Appendix presents the mathematical formula for the logarithmic return and discussion of the measure.
130. The regression results are presented in Exhibit-7.
131. I computed the explained portion of the Freddie Mac’s common stock return on each event date by adding: 1) the estimated regression intercept term, 2) the respective day’s Market Index return multiplied by the Market Index coefficient estimated by the regression, and 3) the respective day’s Peer Index return multiplied by the Peer Index coefficient estimated by the regression.

132. I then computed the residual return for each event date by subtracting the respective explained return from the actual return.

5. *t*-Test

133. For each event, a statistical test called a *t*-test was conducted to determine whether the residual return of Freddie Mac stock was statistically significant. Statistical significance means that the event return, after controlling for the market and peer group effects, was of such large magnitude that it cannot be explained by random volatility, but alternatively must have been caused by Company-specific information. A *t*-test compares the residual return on an event date to the typical residual return exhibited over the regression estimation period. If the event date residual return is far greater (positively or negatively) than the typical residual return, the *t*-test indicates that the residual return is statistically significant.
134. The results of the event study are presented below and summarized in Exhibit-8.

6. Allegation-Related Event Study Results

135. On 20 November 2007, Freddie Mac common stock fell 33.82% (on a logarithmic return basis). The Market Index return was 0.40% and the Peer Index return was -1.31%. According to the regression model, the explained portion of the return on Freddie Mac stock that day was -1.69%. The difference between the actual return of -33.82% and the explained return of -1.69% is a residual return of -32.13%. The residual return is the estimate of the return Freddie Mac stock would have experienced absent any market and peer group effects.
136. A residual return of -32.13% is an unusually large one-day decline for Freddie Mac common stock. That residual return is associated with a *t*-statistic value of -19.30, which

indicates that the residual return was too large to have been merely a random fluctuation. The likelihood of obtaining a residual return of this magnitude and associated t -statistic given that particular explanation (a random fluctuation unrelated to the news) is virtually nil. Therefore, the stock return is deemed statistically significant. This result demonstrates that the common stock reacted promptly to new Company-specific information, which demonstrates market efficiency.

137. The event study shows that for the allegation-related event, there was a strongly statistically significant price reaction to Company-specific news. This finding proves that Freddie Mac common stock reacted to new information and its market was efficient, and, in particular, efficient with respect to the information at issue in this case.
138. The event study is essentially a controlled experiment that allows one to observe the market's valuation of the stock with and without the information at issue. Prior to an event, the stock is valued in the marketplace without the new information. After the event, the stock is valued with the newly-released information. The significant stock price change reflects the effect of the newly disclosed information.

B. Collective Empirical Test Conducted on all WSJ/NYT News Event Dates

139. In addition to assessing market efficiency by observing whether the stock price reacted appropriately to the disclosure of allegation-related information, one can also test for market efficiency by assessing collectively whether the stock has a greater frequency of statistically significant price movements on days with greater information flow ("news dates") than on more typical days ("non-news dates"). That is, if the Freddie Mac common stock price movements are generally more frequently statistically significant among the collection of WSJ/NYT News Event Days than among all other days, this result would

establish that there is a cause and effect relationship between the flow of information and stock price movements, which indicates market efficiency.

140. I conducted a collective empirical test of market efficiency based on these principles.

1. Z-Test Analysis of Frequency of Significant Event Returns

141. The Z-test is a commonly used and widely accepted methodology for testing if the difference in the proportion (or incidence) of statistically significant observations for two samples is itself statistically significant (*See*, “The ‘Less Than’ Efficient Capital Markets Hypothesis: Requiring More Proof from Plaintiffs in Fraud-on-the-Market Cases,” by Paul A. Ferrillo, Frederick C. Dunbar and David Tabak, 78 St. John’s L. Rev. 81, 119-22 (2004); and *In re PolyMedica Corp. Sec. Litig.*, 453 F. Supp. 2d 266 (D. Mass. 2005)). I conducted a Z-test using the event study results from the WSJ/NYT News Event Days compared against all other days in the Class Period.

142. As shown in Exhibit-9, using the respective regression results from both Estimation Periods, there were a total of 330 days during the Class Period on which Freddie Mac stock traded. Of the 330 days, 23 days had statistically significant residual returns. There were 4 statistically significant WSJ/NYT News Event Days out of the total 9 WSJ/NYT News Event Days. 19 of the remaining 321 non-news days were statistically significant. Accordingly, the proportion of statistically significant days among the WSJ/NYT News Event Days is 44.44% and the proportion of statistically significant days among non-news days is 5.92%. The incidence of statistically significant days within the news day group was therefore significantly greater than within the non-news group.

143. This difference in incidence frequency is associated with a z-score of 4.48, which is greater than the critical z-statistic threshold of 1.65 for significance at the 95% confidence level.

This finding indicates that the frequency difference between the two samples is too severe to accept the notion that the price of the Freddie Mac common stock behaves no differently on news event days with a greater flow of information than all other days (the Z-test critical z-score threshold of 1.65 indicates statistical significance at the 95% confidence level for a one tailed test. Here the critical test statistic is for a one-tailed test because the question at issue is whether event dates have a greater frequency of statistically significant returns than non-events). The likelihood of obtaining a difference in incidence frequency of this magnitude and associated z-score under the null hypothesis that Freddie Mac stock trades inefficiently such that information flow has no impact is only 0.0005%. Therefore, the difference in incidence frequency is deemed statistically significant. This finding proves that the stock reacts to information and the market is therefore informationally efficient.

144. The test produces the same result supporting the same conclusion even if one were to remove the allegation-related event (20 November 2007) from the group of WSJ/NYT News Event Days. In this version of the test, 3 of 8 WSJ/NYT News Event Days are statistically significant, equivalent to an incidence rate of 37.5%. This incidence rate is statistically significantly greater than the 5.92% incidence rate for non-news days.

VIII. MARKET EFFICIENCY SUMMARY

145. Freddie Mac common stock traded on the NYSE where its trading was facilitated by a designated market maker. NASDAQ market makers also facilitated trading in Freddie Mac stock. The Company enjoyed broad coverage by equity analysts. Institutional ownership of Freddie Mac stock was widespread. Trading was active as indicated by volume and weekly turnover. Market capitalization and float were large. The stock's bid-ask spread was narrower than the average for all other stocks listed on American exchanges. Though

it was not eligible for S-3 registration on account of its exemption from Exchange Act reporting requirements, the Company did regularly provide quarterly and annual financial reports to investors and therefore possessed the same characteristics (size and reporting) that underlie why S-3 registration eligibility indicates market efficiency.

146. Freddie Mac common stock satisfied the empirical *Cammer* factor, which provides direct demonstrative evidence of market efficiency.
147. The empirical tests proved that there was a cause and effect relationship between new, important Company-specific information, and movements in the price of Freddie Mac stock.
148. Given these facts, I conclude that Freddie Mac common stock traded in an efficient market over the course of the Class Period.

IX. PER SHARE DAMAGE METHODOLOGY

149. Plaintiff's counsel asked me to opine on whether damages could be measured for each Class member under Section 10(b) of the Exchange Act using a common methodology for all Class members.
150. It should be noted that I have not conducted a loss causation analysis at this time and reserve the right to address such issues at the appropriate stage. The loss causation analysis that will be necessary to actually calculate damages in the current case requires the full development of the record.
151. Nonetheless, the methodology discussed herein allows the calculation of individual and class-wide damages stemming from various alleged misrepresentations and omissions, and therefore will accommodate alternative potential determinations of liability. Economic analysis (including valuation and empirical event study analysis) can be used to estimate

the relationship between specific statements or sets of statements and the subsequent effect on prices, in the case of affirmative statements, omissions, and/or corrective disclosures or risk materialization. As such, class-wide damages in response to the specific misrepresentations and omissions ultimately established by the Plaintiff can be calculated in a straightforward manner common to all Class members. Out-of-pocket damages can be measured as the difference between the amount of share price inflation at purchase and the amount of inflation in the share price at sale, taking into account formulaic prescriptions in relevant case law (e.g., *Dura*) and statutes. See *Dura Pharmaceuticals, Inc. v. Broudo*, 544 U.S. 336, 125 S. Ct. 1627, 161 L. Ed. 2d 577 (2005).

A. Section 10(b) Per Share Damage Methodology

152. Assuming a Plaintiff's verdict on the allegations of fraud, Section 10(b) per share damages, respectively for each investor, can be measured as follows:

- i. First, valuation tools, which would include event study analysis such as that described herein, and potentially other empirical analyses if necessary, would be used to establish that the disclosure(s), correcting the alleged misrepresentations and omissions, caused the price of Freddie Mac common stock to fall. This analysis, after controlling for potentially non-fraud-related information, would establish that the alleged misrepresentations and omissions had caused the stock price to be artificially inflated, and that the corrective disclosure(s) caused the inflation to dissipate, in turn causing investor losses. This analysis would apply on a class-wide basis.
- ii. Second, an inflation ribbon would be constructed for the stock, using generally accepted empirical analysis and valuation tools, indicating how much artificial inflation caused by the alleged misrepresentations and omissions was in the price of the Freddie Mac common stock on each day of the Class Period. An inflation ribbon is a time series of the difference

between a stock's actual price observed in the marketplace, and the estimated price that the stock would have traded at each day had there been full disclosure from the outset of the Class Period. Construction of the inflation ribbon generally employs event study analysis, combined with widely used and generally accepted valuation tools and models. The inflation ribbon is often constructed by working chronologically backwards from the final corrective disclosure to the start of the Class Period, accounting for alleged fraud-related residual price declines as they occurred. Inflation prior to a corrective disclosure that dissipated inflation is greater than the inflation afterward by the amount of inflation that dissipated. The full array of generally accepted and widely used valuation tools can be applied, if necessary, to calculate the but-for stock prices under the assumption of prior full disclosure. This analysis would also apply on a class-wide basis.

- iii. Third, the measure of per share damages generally applied in 10(b)-5 cases is the reduction in the inflation ribbon over an investor's holding period (the economic/inflation loss) that was caused by corrective disclosures. That is, for each Class member, per share damages would be calculated as the difference between the inflation on the date the shares were purchased and the inflation on the date those same shares were subsequently sold, excluding any inflation dissipation caused by factors other than corrective disclosure. Per share damages are also limited, however, to be no greater than the decline in share price over the holding period, which is the investment loss actually sustained. Pursuant to the Private Securities Litigation Reform Act of 1995 (the "PSLRA") (15 U.S.C. § 78u-4(e)), for any shares sold during the 90-day period after the end of the Class Period, per share damages would be calculated as the lesser of the reduction in the dollar inflation over the investor's holding period (the economic/inflation loss), or the decline in the share price (the investment loss), where the terminal stock price is deemed to be the average price from the final corrective disclosure date to the sale date. Also pursuant to the PSLRA, for

any shares held 90 days or more beyond the final corrective disclosure, damages would equal the lesser of the reduction in the dollar inflation over the investor's holding period (the economic/inflation loss) or the decline in the stock price (the investment loss), where the terminal stock price is deemed to be the average price over the 90 days following the final corrective disclosure. The calculation of each Class member's damages would be a mechanical arithmetical exercise, conducted the same way for all Class members, applying the results of the Class-wide analyses described above to each Class member's trading data.

153. Consequently, each Class member's damages under Section 10(b) can be computed in the same way, common to all Class members, using readily available daily pricing information, in accordance with widely used and generally accepted methodologies and the PSLRA.
154. I have not yet been asked to calculate damages for any of the claims alleged on behalf of the Class, and such calculations will likely depend, in part, on the completion of discovery. However, the methodology described above is generally accepted and widely used for calculating damages under Section 10(b) consistently on a class-wide basis in securities class actions.
155. The damages methodology will take into account all relevant valuation factors, and do so correctly. If varying investment risk is an issue, the full set of generally accepted and widely used valuation tools will measure the valuation impact of risk, just as investors and analysts routinely take this factor in account in real time. The damages expert will have the added benefit of the event study results, and can observe how much the Freddie Mac common stock price actually changed when the corrective disclosure event occurred.

156. However, I am aware that the full record of facts needs to be developed before one can impose a restriction on the but-for valuation component of the damages analysis, according to the allegations.
157. Further, a fundamental principle of financial economics is that in an efficient market, investors are not systematically wrong. This principle facilitates estimation of the prices the stock would have traded at had investors been properly and fully informed about what the Plaintiff alleges was misrepresented or concealed, which in turn is the basis of the construction of the inflation ribbon. This detail, however, as well as the inflation ribbon itself, will be provided in a report on loss causation and damages, at the appropriately later stage.

X. LIMITING FACTORS AND OTHER ASSUMPTIONS

158. This report is furnished solely for the purpose of court proceedings in the above referenced matter and may not be used or referred to for any other purpose. The analysis and opinions contained in this report are based on information available as of the date of this report. I reserve the right to supplement or amend this report, including in the event additional information becomes available.


Steven P. Feinstein, Ph.D., CFA

XI. APPENDIX: LOGARITHMIC RETURNS

- A-1. Logarithmic returns, rather than percent change returns are commonly used in stock return regressions and event study analysis and were used in the regression modeling here. The formula for a logarithmic return is:

$$R_t = \ln\left(\frac{P_t + d_t}{P_{t-1}}\right)$$

where:

R_t is the logarithmic return on day t ;
 P_t is the stock price at the end of day t ;
 P_{t-1} is the stock price from the previous day, day $t-1$;
 d_t is the dividend on day t , if any.

- A-2. The formula for converting a logarithmic return into a dollar return is:

$$DR_t = P_{t-1} \cdot (e^{R_t} - 1)$$

where:

DR_t is the dollar return on day t ;
 P_{t-1} is the stock price from the previous day, day $t-1$;
 e is natural e (approximately 2.7);
 R_t is the logarithmic return on day t .

- A-3. If a stock falls from \$20 to \$18, the percent change in price is -10%, equal to the \$2 decline divided by the original \$20 price. The logarithmic return, however, is -10.54%, equal to $\ln(\$18/\$20)$.
- A-4. The logarithmic return relates a price change to an average of the original, final, and intervening prices over the course of a price decline. As such, for large price declines, it is possible for a logarithmic price decline to exceed 100%, since the price decline may be greater than the average of the beginning and ending prices.
- A-5. An attractive feature of a logarithmic return is that it can be decomposed into contributing factors linearly. That is, the portion of a logarithmic return caused by company-specific

information is isolated by subtracting from the total logarithmic return the portion of the total return caused by market and peer group factors.

Exhibit-1

Documents and Other Information Considered

CASE DOCUMENTS

- Third Amended Complaint for Violations of Federal Securities Laws, filed 28 March 2012.
- Expert Report of Dr. Greg Hallman, dated 16 August 2012.
- Expert Report of Mukesh Bajaj, Ph. D., dated 14 December 2012.
- Rebuttal Expert Report of Dr. Greg Hallman, dated 18 January 2013.
- Memorandum of Opinion and Order, filed 31 October 2014.
- Declaration of Professor Steven P. Feinstein, PH.D., CFA, dated 16 December 2016.
- Defendants' Opposition to Lead Plaintiff's Motion to Substitute Expert on the Issue of Market Efficiency, filed 17 January 2017.
- Affidavit of Mukesh Bajaj, Ph. D., dated 17 January 2017.
- Reply Memorandum in Support of Plaintiff's Motion to Name a New Expert on Class Certification Issues and Submit Additional Expert Evidence on the Issue of Market Efficiency, filed 1 February 2017.

NEWS ARTICLES/PRESS RELEASES

- Factiva news articles (2,954) from 1 August 2006 to 21 November 2007, downloaded using the following search parameters: Sources Field: All sources Or Major News and Business Sources All Sources; Company: Freddie Mac; All Subjects; All Industries; All Regions.

ANALYST REPORTS

- Credit Suisse, 1 August 2006.
- Prudential, 1 August 2006.
- Fox-Pitt, Kelton, Inc., 2 August 2006.
- JP Morgan, 2 August 2006.
- Fox-Pitt, Kelton, Inc., 9 August 2006.
- Credit Suisse, 24 August 2006.
- JP Morgan, 24 August 2006.
- Prudential, 24 August 2006.
- Credit Suisse, 25 September 2006.
- Fox-Pitt, Kelton, Inc., 25 September 2006.
- Piper Jaffray, 29 September 2006.

Exhibit-1

Documents and Other Information Considered

- Credit Suisse, 3 October 2006.
- Fox-Pitt, Kelton, Inc., 3 October 2006.
- Prudential, 3 October 2006.
- JP Morgan, 4 October 2006.
- Prudential, 16 October 2006.
- Morgan Stanley, 20 October 2006.
- Credit Suisse, 24 October 2006.
- Credit Suisse, 31 October 2006.
- Bear Stearns & Co., 1 November 2006.
- Credit Suisse, 22 November 2006.
- UBS, 22 November 2006.
- Credit Suisse, 21 December 2006.
- UBS, 21 December 2006.
- Fox-Pitt, Kelton, Inc., 22 December 2006.
- Bear Stearns & Co., 5 January 2007.
- Credit Suisse, 5 January 2007.
- Fox-Pitt, Kelton, Inc., 5 January 2007.
- Prudential, 5 January 2007.
- UBS, 5 January 2007.
- UBS, 18 January 2007.
- Credit Suisse, 23 January 2007.
- Fox-Pitt, Kelton, Inc., 23 January 2007.
- UBS, 23 January 2007.
- Credit Suisse, 8 February 2007.
- Prudential, 8 February 2007.
- Bear Stearns & Co., 22 February 2007.
- Credit Suisse, 22 February 2007.
- Fox-Pitt, Kelton, Inc., 22 February 2007.
- UBS, 22 February 2007.
- Prudential, 26 February 2007.
- Credit Suisse, 21 March 2007.
- Fox-Pitt, Kelton, Inc., 21 March 2007.
- UBS, 21 March 2007.
- Bear Stearns & Co., 23 March 2007.
- Credit Suisse, 23 March 2007.
- Fox-Pitt, Kelton, Inc., 23 March 2007.
- UBS, 23 March 2007.
- UBS, 23 March 2007.
- Bear Stearns & Co., 30 March 2007.

Exhibit-1

Documents and Other Information Considered

- JP Morgan, 23 April 2007.
- Credit Suisse, 25 April 2007.
- Bear Stearns & Co., 1 May 2007.
- Unicredit, 7 May 2007.
- UBS, 14 May 2007.
- UBS, 14 May 2007.
- Credit Suisse, 23 May 2007.
- UBS, 23 May 2007.
- Bear Stearns & Co., 14 June 2007.
- Credit Suisse, 14 June 2007.
- JP Morgan, 14 June 2007.
- UBS, 14 June 2007.
- UBS, 21 June 2007.
- UBS, 21 June 2007.
- Bear Stearns & Co., 22 June 2007.
- Credit Suisse, 22 June 2007.
- Credit Suisse, 28 June 2007.
- Credit Suisse, 23 July 2007.
- UBS, 23 July 2007.
- Bear Stearns & Co., 24 July 2007.
- Morgan Stanley, 8 August 2007.
- Bear Stearns & Co., 13 August 2007.
- Credit Suisse, 23 August 2007.
- Bear Stearns & Co., 30 August 2007.
- NAB Sydney, 31 August 2007.
- Bear Stearns & Co., 25 September 2007.
- Credit Suisse, 25 September 2007.
- Fox-Pitt, Kelton, Inc., 25 September 2007.
- JP Morgan, 25 September 2007.
- UBS, 25 September 2007.
- Bear Stearns & Co., 27 September 2007.
- Fox-Pitt, Kelton, Inc., 1 October 2007.
- Bear Stearns & Co., 10 October 2007.
- Lehman Brothers, 11 October 2007.
- Lehman Brothers, 22 October 2007.
- Bear Stearns & Co., 24 October 2007.
- Credit Suisse, 24 October 2007.
- Fox-Pitt, Kelton, Inc., 24 October 2007.
- UBS, 24 October 2007.

Exhibit-1

Documents and Other Information Considered

- Fox-Pitt, Kelton, Inc., 25 October 2007.
- Morgan Stanley, 7 November 2007.
- Morgan Stanley, 7 November 2007.
- Lehman Brothers, 8 November 2007.
- Lehman Brothers, 12 November 2007.
- Piper Jaffray, 15 November 2007.
- Morgan Stanley, 16 November 2007.
- Credit Suisse, 19 November 2007.
- JP Morgan, 19 November 2007.
- Bear Stearns & Co., 20 November 2007.
- Fox-Pitt, Kelton, Inc., 20 November 2007.
- Fox-Pitt, Kelton, Inc., 20 November 2007.
- Morgan Stanley, 20 November 2007.
- UBS, 20 November 2007.
- Lehman Brothers, 21 November 2007.

COMPANY FILINGS

- Freddie Mac, Press Release, filed 1 August 2006.
- Freddie Mac, Press Release, filed 21 August 2006.
- Freddie Mac, Press Release, filed 8 September 2006.
- Freddie Mac, Press Release, filed 3 October 2006.
- Freddie Mac, Press Release, filed 11 October 2006.
- Freddie Mac, Press Release, filed 19 October 2006.
- Freddie Mac, Press Release, filed 5 January 2007.
- Freddie Mac, Press Release, filed 17 January 2007.
- Freddie Mac, Press Release, filed 8 March 2007.
- Freddie Mac, Financial Report for the Fiscal Year Ended 31 December 2006, filed 23 March 2007.
- Freddie Mac, Press Release, filed 12 April 2007.
- Freddie Mac, Press Release, filed 1 May 2007.
- Freddie Mac, Press Release, filed 7 June 2007.
- Freddie Mac, Press Release, filed 14 June 2007.
- Freddie Mac, Financial Report for Three Months Ended 31 March 2007, filed 14 June 2007.
- Freddie Mac, Press Release, filed 19 July 2007.
- Freddie Mac, Press Release, filed 25 July 2007.
- Freddie Mac, Press Release, filed 30 August 2007.

Exhibit-1

Documents and Other Information Considered

- Freddie Mac, Financial Report for Three Months Ended 30 June 2007, filed 30 August 2007.
- Freddie Mac, Press Release, filed 7 September 2007.
- Freddie Mac, Press Release, filed 19 September 2007.
- Freddie Mac, Press Release, filed 27 September 2007.
- Freddie Mac, Press Release, filed 28 September 2007.
- Freddie Mac, Press Release, filed 9 November 2007.
- Freddie Mac, Press Release, filed 20 November 2007.
- Freddie Mac, Financial Report for Three Months Ended 30 September 2007, filed 20 November 2007.

ACADEMIC AND PROFESSIONAL LITERATURE

- Atkins, Allen B. and Edward A. Dyl, "Price Reversals, Bid-Ask Spreads, and Market Efficiency," *Journal of Financial and Quantitative Analysis*, Vol. 25, No. 4, 1990.
- Aktas, Nihat, Eric de Bodt, and Jean-Gabriel Cousin, "Event Studies with a Contaminated Estimation Period," *Journal of Corporate Finance*, 2007.
- Barber, Brad M., Paul A. Griffin, and Baruch Lev, "The Fraud-on-the-Market Theory and the Indicators of Common Stock Efficiency," *Journal of Corporation Law*, 1994.
- Binder, John J., "Measuring the Effects of Regulation with Stock Price Data," *The RAND Journal of Economics*, 1985.
- Box, G. E. P. and G. C. Tiao, "Intervention Analysis with Applications to Economic and Environmental Problems," *Journal of the American Statistical Association*, 1975.
- Brav, Alon and J.B. Heaton, "Event Studies in Securities Litigation: Low Power, Confounding Effects, And Bias," *Washington University Law Review*, 30 March 2015.
- Bromberg, Alan R. and Lewis D. Lowenfels, *Securities Fraud and Commodities*, August, 1988.
- Campbell, John Y., Andrew W. Lo and A. Craig MacKinlay, *The Econometrics of Financial Markets*, Princeton University Press, 1997.
- Crew, Nicholas I., et al., "Federal Securities Acts and Areas of Expert Analysis," *Litigation Services Handbook*; Chapter 24, *The Role of the Financial Expert*, 5th ed., edited by Roman L. Weil, Daniel G. Lentz, and David P. Hoffman, John Wiley & Sons, Inc., 2012.
- Fama, Eugene F., "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance*, 1970.
- Fama, Eugene F., "Efficient Capital Markets: II," *Journal of Finance*, 1991.
- Ferrillo, Paul A., Frederick C. Dunbar and David Tabak, "The 'Less Than' Efficient Capital Markets Hypothesis: Requiring More Proof from Plaintiffs in Fraud-on-the-Market Cases," *78 St. John's L. Rev.* 81, 119-22 (2004).

Exhibit-1

Documents and Other Information Considered

- Kennedy, Peter, *A Guide to Econometrics*, 6th edition, Chapter 8, Blackwell Publishing, 2008.
- Larcher, David F., et al., "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," *Journal of Finance and Quantitative Analysis*, 1980.
- MacKinlay, Craig A., "Event Studies in Economics and Finance," *Journal of Economic Literature*, March 1997.
- Malatesta, Paul H., "Measuring Abnormal Performance: The Event Parameter Approach Using Joint Generalized Least Squares," *The Journal of Financial and Quantitative Analysis*, 1986.
- Reilly, Frank and Keith Brown, "Organization and Functioning of Securities Markets," *Equity and Fixed Income CFA Program Curriculum*, vol. 5, Pearson Custom Publishing, 2008.
- Reiss, David J., "The Federal Government's Implied Guarantee of Fannie Mae's and Freddie Mac's Obligations: Uncle Sam Will Pick Up the Tab," 42 *Georgia Law Review* 1019, 2008.
- Tabak, David I., and Frederick C. Dunbar, "Materiality and Magnitude: Event Studies in the Courtroom," in *Litigation Services Handbook, The Role of the Financial Expert*, 3rd ed., edited by Roman L. Weil, Michael J. Wagner, and Peter B. Frank, John Wiley & Sons, Inc., 2001.
- Thompson, Rex, "Conditioning the Return-Generating Process on Firm-Specific Events: A Discussion of Event Study Methods," *The Journal of Financial and Quantitative Analysis*, 1985.

CONFERENCE CALLS

- "Federal Home Loan Mortgage Corp., Q2 2006 Preliminary Earnings Call," *FactSet: callstreet*, 3 October 2006.
- "Federal Home Loan Mortgage Corp., Q3 2006 Preliminary Earnings Call," *FactSet: callstreet*, 5 January 2007.
- "Federal Home Loan Mortgage Corp., Q4 2006 Earnings Call," *FactSet: callstreet*, 23 March 2007.
- "Federal Home Loan Mortgage Corp., Q1 2007 Earnings Call," *FactSet: callstreet*, 14 June 2007.
- "Federal Home Loan Mortgage Corp., Q2 2007 Earnings Call," *FactSet: callstreet*, 30 August 2007.
- "Federal Home Loan Mortgage Corp., Q3 2007 Earnings Call," *FactSet: callstreet*, 20 November 2007.

Exhibit-1

Documents and Other Information Considered

DATA AND DATABASES

- Bloomberg
- CRSP (Center for Research in Security Prices)
- Factiva
- FactSet
- Thomson Eikon

LEGAL CASES

- *Amgen Inc., et al. v. Connecticut Retirement Plans*, 133 S. Ct. 1184, 1190 (2013).
- *Basic, Inc. v. Levinson*, 485 U.S. (1988).
- *Cammer v. Bloom*, 711 F. Supp. 1264 (N.J., 1989).
- *Dura Pharmaceuticals, Inc. v. Broudo*, 544 U.S. 336, 125 S. Ct. 1627, 161 L. Ed. 2d 577 (2005).
- *Krogman v. Sterritt*, 202 F.R.D. 467 (N.D.Tex. 2001).
- *Unger v. Amedisys*, 401 F.3d 316 (5th Cir. 2005).
- *Nguyen v. Radiant Pharm. Corp.*, 287 F.R.D. 563, 573 (C.D. Cal. 2012).
- *Halliburton Co. Et Al. v. Erica P. John Fund, Inc., FKA Archdiocese of Milwaukee Supporting Fund, Inc.*, 573 U. S. 10 (2014).
- *In re PolyMedica Corp. Sec. Litig.*, 453 F. Supp. 2d 266 (D. Mass. 2006).

OTHER

- Section 10(b) of the Exchange Act of 1934.
- Private Securities Litigation Reform Act of 1995 (the “PSLRA”) (15 U.S.C. § 78u-4(e)).
- “Nasdaq To Enable Customers To Trade NYSE Stocks,” *Reuters*, 28 March 2005.
- “Revisions to the Eligibility Requirements for Primary Securities Offerings on Forms S-3 and F-3,” SEC Release No. 33-8878, 19 December 2007.
- “Fact Sheet; Designated Market Makers,” NYSE Euronext, 2012.
- “Brief of Financial Economists as Amici Curiae in Support of Respondents,” *Halliburton Co. and David Lesar v., Erica P. John Fund, Inc., FKA Archdiocese of Milwaukee Supporting Fund, Inc.*, 5 February 2014.
- Expert Report of Mukesh Bajaj, Ph. D., *In re Allergan*, dated 11 October 2016.
- Any other documents and data cited in the report.

Exhibit-2

**Curriculum Vitae
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EDUCATION

- 1989 YALE UNIVERSITY
Ph.D. in Economics (Concentration in Finance)
- 1986 YALE UNIVERSITY
M.Phil. in Economics
- 1983 YALE UNIVERSITY
M.A. in Economics
- 1981 POMONA COLLEGE
B.A. in Economics (Phi Beta Kappa, *cum laude*)

TEACHING EXPERIENCE

- 1996 - present BABSON COLLEGE
Babson Park, MA
Full-time Faculty, Finance Division
Associate Professor (2000-present)
Donald P. Babson Chair in Applied Investments (2002-2010)
Faculty Director of the Babson College Fund (2002-2009)
Director of the Stephen D. Cutler Investment Management Center
(2002-2007)
Assistant Professor (1996-2000)
- 1990 - 1995 BOSTON UNIVERSITY SCHOOL OF MANAGEMENT
Boston, MA
Full-time Faculty, Department of Finance
- 1993 - 1994 WASHINGTON UNIVERSITY, OLIN SCHOOL OF BUSINESS
St. Louis, MO
Visiting Assistant Professor, Department of Finance

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

BUSINESS EXPERIENCE

2008 - present	CROWNINSHIELD FINANCIAL RESEARCH, INC. Wellesley, MA President and Senior Expert
1996 - 2008	THE MICHEL-SHAKED GROUP Boston, MA Senior Expert (2001 - 2008) Affiliated Expert (1996 - 2001)
1987 - 1990	FEDERAL RESERVE BANK OF ATLANTA Economist

PROFESSIONAL DESIGNATIONS

1998 Awarded the Chartered Financial Analyst designation by the Association for Investment Management and Research.

RESEARCH AWARDS

1999 Greater Boston Real Estate Board/Real Estate Finance Association – Research Grant and Featured Speaker at Real Estate Finance Association Meetings.

PAPERS AND PUBLICATIONS

“Underestimation of Securities Fraud Aggregate Damages Due to Inter-Fund Trades.” (with Gang Hu, Mark Marcus, and Zann Ali) *Journal of Forensic Economics*, September 2013, Vol. 24, No. 2, 161-173.

“Lehman Equity Research Tipping: Evidence in the Stock Price Data,” Working paper, March 2010. Cited in *New York Times* May 19, 2012, and made available on the *New York Times* website.

“Distortion in Corporate Valuation: Implications of Capital Structure Changes” (with Allen Michel and Jacob Oded) *Managerial Finance*, 2011, Vol. 37(8), 681-696.

“Market Signals of Investment Unsuitability” (with Alexander Liss and Steven Achatz) Law360.com, June 3, 2010. Available from <http://www.law360.com/articles/170690>.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

“Planning Capital Expenditure,” in *The Portable MBA in Financing and Accounting*, J. L. Livingstone and T. Grossman, editors, New York: Wiley, 3rd edition 2001, and 4th edition 2009.

“Financial Management of Risks,” in *The Portable MBA in Financing and Accounting*, J. L. Livingstone and T. Grossman, editors, New York: Wiley, 2nd edition 1997, 3rd edition 2001, and 4th edition 2009.

“Fraud-on-the-Market Theory: Is a Market Efficient?” (with Allen Michel and Israel Shaked) *American Bankruptcy Institute Journal*, May 2005.

“Valuation of Credit Guarantees” (with Allen J. Michel and Israel Shaked). *Journal of Forensic Economics* 17(1), pp. 17-37, 2005.

“A Better Understanding of why NPV Undervalues Managerial Flexibility,” (with Diane Lander) in *The Engineering Economist*, 2002, Volume 47, Number 4.

“Teaching the Strong-Form Efficient Market Hypothesis: A Classroom Experiment,” *Journal of Financial Education*, fall 2000.

A Future for Real Estate Futures: Potential Applications of Derivatives in Real Estate Investment and Finance (with Linda Stoller). Monograph. Boston: Real Estate Finance Association / Greater Boston Real Estate Board, May 2000.

“The Risk Budget: Using Your Human Resources,” (with John Marthinsen and John Edmunds) *Risk Management*, April 2000.

“Scenario Learning: A Powerful Tool for the 21st Century Planner,” (with Jeffrey Ellis and Dennis Stearns) *The Journal of Financial Planning*, April 2000.

“Protecting Future Product Liability Claimants in the Case of Bankruptcy,” (with Allen Michel and Israel Shaked) *American Bankruptcy Institute Journal*, January 2000.

“Measuring Risk with the Bodie Put When Stocks Exhibit Mean Reversion,” *The Journal of Risk*, Vol. 1, No. 3, 1999.

“Just-in-Time Mathematics: Integrating the Teaching of Finance Theory and Mathematics,” (with Gordon Prichett) *Primus*, Vol. IX, No. 2, June 1999.

Atlanta Park Medical Center v. Hamlin Asset Management. (with Natalie Taylor). Babson Case Collection, Harvard Business School Press, 1998.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

“Dealing with Delta,” *Derivatives Week*, VII, No. 44, November 2, 1998.

“Expected Return in Option Pricing: A Non-Mathematical Explanation,” *Derivatives Week*, VII, No. 35, August 31, 1998.

“When Hedges Fail: The Put Paradox and its Solution,” *Derivatives Quarterly*, Vol. 4, No. 2, Winter 1997.

Finance and Accounting for Project Management. New York: American Management Association, 1996.

“International Investing,” in *Irwin’s Directory of Emerging Market Brokerages*. New York: Irwin, 1996.

“The Hull and White Implied Volatility.” Boston University Working Paper #92-51, 1992.

“Immunizing Against Interest Rate Risk Using the Macaulay Duration Statistic: An Assessment,” (with Don Smith) in *Financial Systems and Risk Management*, the proceedings of the US-Japan Forum on Financial Strategy in the 1990s, sponsored by Osaka Foundation of International Exchange and Boston University, August 1991.

“Covered Call Options: A Proposal to Ease LDC Debt,” (with Peter Abken) *Federal Reserve Bank of Atlanta Economic Review*, March/April 1990. Reprinted in *Financial Derivatives: New Instruments and Their Uses*. Atlanta: Federal Reserve Bank.

“Forecasting Stock-Market Volatility Using Options on Index Futures,” *Federal Reserve Bank of Atlanta Economic Review*, May/June 1989. Reprinted in *Financial Derivatives: New Instruments and Their Uses*. Atlanta: Federal Reserve Bank.

“The Black-Scholes Formula is Nearly Linear in Sigma for At-the-Money Options; Therefore Implied Volatilities from At-the-Money Options are Virtually Unbiased.” Federal Reserve Bank of Atlanta Working Paper #88-9, December 1988.

“The Effect of the ‘Triple Witching Hour’ on Stock Market Volatility,” (with William Goetzmann) *Federal Reserve Bank of Atlanta Economic Review*, September/October 1988. Reprinted in *Financial Derivatives: New Instruments and Their Uses*. Atlanta: Federal Reserve Bank.

“Stock Market Volatility,” *Federal Reserve Bank of Atlanta Economic Review*, November/December 1987.

Exhibit-2

Curriculum Vitae Steven P. Feinstein, Ph.D., CFA

Book review of *In Who's Interest: International Banking and American Foreign Policy*, by Benjamin J. Cohen, Yale University Press, in *Federal Reserve Bank Of Atlanta Economic Review*, Summer 1987.

PRESENTATIONS

"Determining the Defendant's Ability to Pay," at Taxpayers Against Fraud Education Fund Conference, October 2010.

"The Computation of Damages in Securities Fraud Cases," at the Grant and Eisenhower Institutional Investor Conference, December 2002.

"The Role of the Financial Expert in Complex Litigation," at the Financial Management Association Conference, October 2000.

"Entrepreneurial Incentives and Resource Allocation Among Corporate Venturing Initiatives," (with Joel Shulman and U. Srinivasa Rangan), Babson Entrepreneurship Research Conference, May 2000.

"Application of Real Options in Purchasing Strategies," (with Juan Orozco), presented at the International Applied Business Research Conference, March 2000.

"A Future for Real Estate Futures," (with Linda Stoller) at the Fairfield County chapter of the Real Estate Finance Association, November 1999, and at the Greater Boston Real Estate Board, November 2000.

"Atlanta Park Medical Center v. Hamlin Asset Management," (with Natalie Taylor) at the 1999 convention of the North American Case Research Association.

"Using Future Worlds™ in the Financial Planning Process," (with Jeffrey Ellis) at the Institute of Certified Financial Planners Masters Retreat, October 1999.

"Toward a Better Understanding of Real Options: A Weighted Average Discount Rate Approach," at the 1999 Financial Management Association Conference, the 1999 European Financial Management Association Conference, and the 1999 Multinational Finance Society Conference.

"Just-In-Time Mathematics: Integrating the Teaching of Finance Theory and Mathematics," (with Gordon Prichett) at the 1999 Financial Management Association Conference.

"Alternative Dow Investments for the Individual Investor: Diamonds, Synthetics, and the Real Thing," at the 1999 Academy of Financial Services Convention.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

“Evidence of Yield Burning in Municipal Refundings” at Financial Management Association Convention, October 1997; Government Finance Officers Association, 1997; and Northeast Regional Convention of the National Association of State Treasurers, 1997.

“Teaching the Strong-Form Efficient Market Hypothesis” at Conference on Classroom Experiments in the Teaching of Economics at University of Virginia, September 1995.

“Efficient Consolidation of Implied Standard Deviations,” (with Shaikh Hamid) at Midwest Finance Association, March 1995.

“A Test of Intertemporal Averaging of Implied Volatilities,” (with Shaikh Hamid) at Eastern Finance Association, April 1995.

“Taking Advantage of Volatility: Non-linear Forecasting and Options Strategies,” (with Hassan Ahmed) at Chicago Board of Trade / Chicago Board Options Exchange Conference on Risk Management, February 1992.

“Immunizing Against Interest Rate Risk Using the Macaulay Duration Statistic: An Assessment,” (with Don Smith) at Japan-U.S. Conference on Financial Strategies in the 1990s, Osaka, Japan, August 1991.

“The Hull and White Implied Volatility,” at American Finance Association Convention, December 1990.

REVIEWED ARTICLES AND BOOKS FOR:

Harvard Business School Publishing
Elsevier
Journal of Economic Education
Journal of Forensic Economics
Journal of Risk
Financial Review
North American Case Research Association
Financial Management
Journal of Business
Journal of Money, Credit and Banking
Quarterly Review of Economics and Finance
Blackwell
Prentice Hall
Southwestern Publishing

Exhibit-2

Curriculum Vitae Steven P. Feinstein, Ph.D., CFA

COURSES TAUGHT

Capital Markets
Mod B: Decision Making and Applications, Finance stream (MBA)
Financial Reporting and Corporate Finance (MBA)
Valuation (MBA)
Investments (MBA and Executive)
Equity Markets (MBA)
Fixed Income Analysis (Undergraduate and MBA)
Babson College Fund (Undergraduate and MBA)
Options and Futures (Undergraduate)
Advanced Derivative Securities (MBA)
Corporate Finance (MBA and Executive)
Financial Management (MBA)
Risk Management (MBA)
Corporate Financial Strategy (MBA)
Integrated Management (Undergraduate)
Cross-Functional Management (Integrated curriculum, Undergraduate)
Continuous-Time Finance (Doctoral)
Portfolio Theory / Management Information Systems (Executive)
Quantitative Methods for Investment Management (Undergraduate and MBA)
Introduction to Derivative Securities (Executive)
International Finance (Executive)

TEACHING AWARDS

Reid Teaching Award, Washington University, Olin School of Business, 1993-94.

SELECT LIST OF MEDIA CITATIONS

“Is Insider Trading Part of the Fabric?” by Gretchen Morgenson, *The New York Times*, May 19, 2012.

“Bankers Rigging Municipal Contract Bids Admit to Cover-Up Lies,” by William Selway and Martin Z. Braun, *Bloomberg Markets Magazine*, November 24, 2010.

“Hospital Move Presents Buy-Out Groups with New Risks,” by Francesco Guerra, Christopher Bowe, and Rebecca Knight, *Financial Times*, July 15, 2006.

“Funds of Knowledge Add Value,” by Rebecca Knight, *Financial Times*, March 12, 2006.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

“City’s Financial Picture Worse Than Ever, Sanders Says,” by Matthew T. Hall, *San Diego Union-Tribune*, January 7, 2006.

“Downer: Stock Market Takes Another Dive,” by John Chesto, *Boston Herald*, July 23, 2002.

“Banks, Developers, Are Main Beneficiaries,” [editorial column] by Steven Feinstein, *The Boston Globe*, March 31, 2002, p. C4.

“Washington Investing: What Michael Saylor is Really Worth,” by Jerry Knight, *The Washington Post*, March 6, 2000.

“IBM Retools Pensions,” by Stephanie Armour, *USA Today*, May 4, 1999.

“L.A. MTA’s Law Firm Says Lissack Strategy Will be a Replay,” by Andrea Figler, *Bond Buyer*, September 30, 1998.

“Fed Key Player in Rescue of Floundering Hedge Fund,” by Andrew Fraser, Associated Press, September 25, 1998.

“Top Banks Plan Bailout for Fund,” by Andrew Fraser, Associated Press, September 24, 1998.

“Clarion Call to the Small Investor,” by Jo-Ann Johnston, *The Boston Globe*, March 4, 1998.

“L.A. Authority Study Shows Rampant Yield Burning Abuse,” by Michael Stanton, *The Bond Buyer*, April 22, 1997.

“Dispute Over Yield Burning Dominates GFOA Session,” by Michael Stanton, *The Bond Buyer*, January 29, 1997.

“Men Behaving Badly (Yield Burning),” *Grants Municipal Bond Observer*, January 24, 1997.

“Municipal Bond Dealers Face Scrutiny,” by Peter Truell, *The New York Times*, December 17, 1996.

“Iowa Market Takes Stock of Presidential Candidates,” by Stanley W. Angrist, *The Wall Street Journal*, August 28, 1995.

“Looking for Clues in Options Prices,” by Sylvia Nasar, *The New York Times*, July 18, 1991.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

“For Fed, A New Set of Tea Leaves,” by Sylvia Nasar, *The New York Times*, July 5, 1991.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Finance Association
Boston Security Analysts Society
Chartered Financial Analyst Institute
Financial Management Association
Foundation for Advancement of Research in Financial Economics (founding member)
National Association of Forensic Economics
North American Case Research Association

Exhibit-3
Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years

Christopher Cohan, et al., vs. KPMG LLP
Court of Fulton County
State of Georgia
Civil Action no. 12EV0114325G
June 2013

Landmen Partners Inc. et al. vs. The Blackstone Group L.P., et al.
United States District Court
Southern District of New York
Civil Action no. 08-cv-03601-HB
Deposition Testimony
May 2013 and August 2013

Louis Pagnotti, Inc. et al., vs. Deloitte & Touche, LLP,
In the Court of Common Pleas of Luzerne County
Case No. 557 C of 2003
Deposition Testimony
October 2013

In Re IndyMac Mortgage-Backed Securities Litigation
Civil Action No. 1:09-cv-04583-LAK
United States District Court
Southern District of New York
Deposition Testimony
October 2013

Anwar, et al., v. Fairfield Greenwich Limited, et al.
Civil Action No. 09-cv-0118 (VM)
United States District Court
Southern District of New York
Deposition Testimony
February 2014

In Re Symbol Technologies, Inc. Securities Litigation
Civil Action No. 05-cv-3923-DRH
United States District Court
Eastern District of New York
Deposition Testimony
June 2014

Exhibit-3
Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years

In Re Groupon, Inc. Securities Litigation
Civil Action No. 12-cv-2450
United States District Court
Northern District of Illinois
Deposition Testimony
February 2014
Testimony at Evidentiary Hearing
September 2014

Mary K. Jones, et al., vs. Pfizer Inc., et al.
United States District Court
Southern District of New York
Civil Action no. 10-cv-03864-AKH
Deposition Testimony
January 2012 and October 2014

In Re Questcor Pharmaceuticals, Inc. Securities Litigation
Civil Action No. 12-cv-01623-DMG
United States District Court
Central District of California
Deposition Testimony
October 2014

In Re Longtop Financial Technologies, Ltd. Securities Litigation
Civil Action No. 11-cv-3658-SAS
United States District Court
Southern District of New York
Trial Testimony
November 2014

In Re Delcath Systems, Inc. Securities Litigation
Civil Action No. 13 Civ. 3116 (LGS)
United States District Court
Southern District of New York
Deposition Testimony
December 2014

In Re Prudential Financial, Inc. Securities Litigation
Civil Action No. 2:12-cv-05275-SDW-MCA
United States District Court
District of New Jersey
Deposition Testimony
January 2015

Exhibit-3
Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years

In Re Walter Energy, Inc. Securities Litigation
Civil Action No. 2:12-cv-00281-VEH
United States District Court
Northern District of Alabama
Deposition Testimony
January 2014 and March 2015

In Re CVS Caremark Corporation Securities Litigation
Civil Action No. 1:09-cv-00554-S-DLM
United States District Court
District of Rhode Island
Deposition Testimony
March 2015

In Re JPMorgan Chase & Co. Securities Litigation
Civil Action No. 1:12-cv-03852-GBD
United States District Court
Southern District of New York
Deposition Testimony
March 2015

In Re Baxter International Inc., et al. Securities Litigation
Civil Action No. 1:10-cv-06016
United States District Court
Northern District of Illinois Eastern Division
Deposition Testimony
November 2014 and May 2015

In Re Goldman, Sachs & Co., et al. Securities Litigation
Civil Action No. 10 Civ. 4429 (MGC)
United States District Court
Southern District of New York
Deposition Testimony
June 2015

In Re United States of America, et al. v. Frank Kurnik and Pharmerica Corp., et al.
Case No. 3:11-cv-1464-JFA
United States District Court
District South Carolina
Deposition Testimony
June 2015

Exhibit-3
Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years

In Re HCA Holdings, Inc., Securities Litigation
Civil Action No. 3:11-cv-01033
United States District Court
Middle District of Tennessee
Nashville Division
Deposition Testimony
June 2015

In Re Claude A. Reese, et al. v. Robert A. Malone, et al.
Civil Action No. C08-1008 MJP
United States District Court
Western District of Washington at Seattle
Deposition Testimony
June 2015

In Re Bridgepoint Education, Inc. Securities Litigation
Civil Action No. 3:12-cv-01737-JM-JLB
United States District Court
Southern District of California
Deposition Testimony
July 2015

In Re Dana Corporation, et al. Securities Litigation
Civil Action No. 3:05-cv-07393-JGC
United States District Court
Northern District of Ohio
Deposition Testimony
June 2015 and August 2015

In Re Las Vegas Sands Corp. Securities Litigation
Civil Action No. 2:10-cv-00765-KJD-LRL
United States District Court
District of Nevada
Deposition Testimony
March 2015 and December 2015

In Re Groupon, Inc. Securities Litigation
Civil Action No. 12-cv-2450
United States District Court
Northern District of Illinois
Deposition Testimony
December 2015

Exhibit-3
Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years

In Re: Petrobras Securities Litigation
Case No. 14-cv-9662 (JSR)
United States District Court
Southern District of New York
Deposition Testimony
October 2015 and December 2015
Testimony at Evidentiary Hearing
December 2015

In Re Symbol Technologies, Inc. Securities Litigation
Civil Action No. 05-cv-3923-DRH
United States District Court
Eastern District of New York
Deposition Testimony
January 2016

In Re KBR, Inc. Securities Litigation
Case No. 4:14-CV-01287
United States District Court
Southern District of Texas
Deposition Testimony
April 2016

In Re: Petrobras Securities Litigation
Case No. 15-cv-04226 (JSR)
Case No. 15-cv-03923 (JSR)
Case No. 15-cv-03911 (JSR)
United States District Court
Southern District of New York
Deposition Testimony
June 2016

In Re World Acceptance Corporation Securities Litigation
Case No. 6:14-cv-01606
United States District Court
District of South Carolina
Deposition Testimony
February 2017

Exhibit-3
Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years

In Re Silver Wheaton Corp. Securities Litigation
Case No. 4 2:15-cv-05146
United States District Court
Central District of California
Deposition Testimony
February 2017

In Re Puma Biotechnology, Inc. Securities Litigation
Case No. 8:15-cv-00865-AG-JLG
United States District Court
Central District of California
Deposition Testimony
April 2017

In Re Medtronic, Inc. Securities Litigation
Case No. 0:13-cv-01686-JRT-FLN
United States District Court
District of Minnesota
Deposition Testimony
April 2017

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
7/31/2006	\$57.86	-	\$57.85	\$57.87	2,296,300	
8/1/2006	\$57.53	-	\$57.52	\$57.51	3,096,100	-0.57%
8/2/2006	\$57.39	-	\$57.41	\$57.43	2,435,400	-0.24%
8/3/2006	\$57.54	-	\$57.50	\$57.51	2,338,100	0.26%
8/4/2006	\$57.60	-	\$57.54	\$57.55	3,203,900	0.10%
8/7/2006	\$57.93	-	\$57.93	\$57.95	2,090,200	0.57%
8/8/2006	\$57.62	-	\$57.58	\$57.62	2,610,500	-0.54%
8/9/2006	\$57.53	-	\$57.55	\$57.56	2,614,000	-0.16%
8/10/2006	\$58.69	-	\$58.65	\$58.66	3,218,700	2.00%
8/11/2006	\$58.50	-	\$58.46	\$58.47	2,095,700	-0.32%
8/14/2006	\$58.90	-	\$58.91	\$58.95	2,448,600	0.68%
8/15/2006	\$59.95	-	\$59.94	\$59.97	2,460,900	1.77%
8/16/2006	\$60.41	-	\$60.38	\$60.41	2,987,900	0.76%
8/17/2006	\$60.83	-	\$60.86	\$60.87	3,044,800	0.69%
8/18/2006	\$61.17	-	\$61.13	\$61.14	2,827,000	0.56%
8/21/2006	\$61.15	-	\$61.20	\$61.23	2,458,200	-0.03%
8/22/2006	\$61.50	-	\$61.52	\$61.55	3,571,800	0.57%
8/23/2006	\$61.80	-	\$61.73	\$61.76	2,786,900	0.49%
8/24/2006	\$63.40	-	\$63.35	\$63.39	4,927,600	2.56%
8/25/2006	\$63.41	-	\$63.40	\$63.44	3,102,900	0.02%
8/28/2006	\$63.85	-	\$63.86	\$63.89	2,458,000	0.69%
8/29/2006	\$64.45	-	\$64.48	\$64.49	2,647,400	0.94%
8/30/2006	\$63.87	-	\$63.87	\$63.90	2,322,100	-0.90%
8/31/2006	\$63.60	-	\$63.61	\$63.63	2,018,800	-0.42%
9/1/2006	\$63.67	-	\$63.66	\$63.68	1,318,500	0.11%
9/5/2006	\$63.51	-	\$63.46	\$63.50	2,454,300	-0.25%
9/6/2006	\$63.62	-	\$63.60	\$63.61	2,485,900	0.17%
9/7/2006	\$63.13	-	\$63.12	\$63.13	2,319,600	-0.77%
9/8/2006	\$63.45	-	\$63.44	\$63.47	2,499,600	0.51%
9/11/2006	\$63.52	-	\$63.47	\$63.48	1,360,600	0.11%
9/12/2006	\$63.90	-	\$63.90	\$63.91	2,262,100	0.60%
9/13/2006	\$64.10	-	\$64.11	\$64.13	1,758,200	0.31%
9/14/2006	\$63.20	\$0.47	\$63.19	\$63.20	2,925,900	-0.67%
9/15/2006	\$64.37	-	\$64.36	\$64.37	3,214,400	1.83%
9/18/2006	\$64.04	-	\$64.01	\$64.03	1,402,800	-0.51%
9/19/2006	\$64.27	-	\$64.26	\$64.27	1,132,800	0.36%
9/20/2006	\$64.76	-	\$64.73	\$64.81	1,905,700	0.76%

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
9/21/2006	\$64.25	-	\$64.27	\$64.30	1,281,300	-0.79%
9/22/2006	\$64.17	-	\$64.18	\$64.19	999,800	-0.12%
9/25/2006	\$65.08	-	\$65.05	\$65.07	3,363,600	1.41%
9/26/2006	\$65.58	-	\$65.56	\$65.64	2,066,900	0.77%
9/27/2006	\$65.47	-	\$65.47	\$65.49	2,302,500	-0.17%
9/28/2006	\$65.76	-	\$65.77	\$65.80	1,321,500	0.44%
9/29/2006	\$66.33	-	\$66.32	\$66.33	2,392,300	0.86%
10/2/2006	\$65.16	-	\$65.15	\$65.16	1,906,300	-1.78%
10/3/2006	\$66.04	-	\$66.09	\$66.11	2,733,200	1.34%
10/4/2006	\$66.33	-	\$66.32	\$66.33	2,278,900	0.44%
10/5/2006	\$66.99	-	\$66.96	\$66.97	2,169,100	0.99%
10/6/2006	\$67.30	-	\$67.29	\$67.30	2,372,800	0.46%
10/9/2006	\$67.69	-	\$67.65	\$67.66	2,413,800	0.58%
10/10/2006	\$67.66	-	\$67.63	\$67.64	2,146,000	-0.04%
10/11/2006	\$68.15	-	\$68.13	\$68.14	2,964,500	0.72%
10/12/2006	\$68.75	-	\$68.74	\$68.78	3,584,100	0.88%
10/13/2006	\$68.38	-	\$68.37	\$68.38	2,501,900	-0.54%
10/16/2006	\$69.00	-	\$69.00	\$69.01	2,596,800	0.90%
10/17/2006	\$68.95	-	\$68.97	\$69.00	2,356,000	-0.07%
10/18/2006	\$70.25	-	\$70.19	\$70.22	5,464,600	1.87%
10/19/2006	\$68.90	-	\$68.86	\$68.90	3,159,100	-1.94%
10/20/2006	\$68.42	-	\$68.41	\$68.42	3,823,600	-0.70%
10/23/2006	\$68.39	-	\$68.31	\$68.38	3,219,700	-0.04%
10/24/2006	\$68.20	-	\$68.26	\$68.28	3,279,100	-0.28%
10/25/2006	\$69.17	-	\$69.13	\$69.14	2,582,000	1.41%
10/26/2006	\$69.15	-	\$69.08	\$69.09	2,177,100	-0.03%
10/27/2006	\$69.10	-	\$69.10	\$69.11	2,063,600	-0.07%
10/30/2006	\$69.04	-	\$68.98	\$69.01	2,042,900	-0.09%
10/31/2006	\$68.99	-	\$68.95	\$69.03	3,521,900	-0.07%
11/1/2006	\$67.86	-	\$67.91	\$67.95	3,946,100	-1.65%
11/2/2006	\$67.91	-	\$67.88	\$67.94	2,561,200	0.07%
11/3/2006	\$67.97	-	\$68.00	\$68.02	1,792,800	0.09%
11/6/2006	\$69.16	-	\$69.14	\$69.15	2,823,500	1.74%
11/7/2006	\$69.86	-	\$69.86	\$69.87	3,037,600	1.01%
11/8/2006	\$71.23	-	\$71.22	\$71.23	5,792,800	1.94%
11/9/2006	\$70.01	-	\$70.03	\$70.05	5,220,500	-1.73%
11/10/2006	\$69.48	-	\$69.41	\$69.49	3,295,500	-0.76%

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
11/13/2006	\$69.04	-	\$69.09	\$69.13	2,343,900	-0.64%
11/14/2006	\$68.79	-	\$68.73	\$68.83	3,301,600	-0.36%
11/15/2006	\$68.54	-	\$68.56	\$68.63	3,355,300	-0.36%
11/16/2006	\$68.59	-	\$68.63	\$68.64	3,665,300	0.07%
11/17/2006	\$68.00	-	\$67.98	\$68.00	4,217,000	-0.86%
11/20/2006	\$67.62	-	\$67.57	\$67.62	2,398,300	-0.56%
11/21/2006	\$67.51	-	\$67.49	\$67.50	1,075,500	-0.16%
11/22/2006	\$68.17	-	\$68.13	\$68.16	1,599,000	0.97%
11/24/2006	\$67.28	-	\$67.30	\$67.35	781,500	-1.31%
11/27/2006	\$66.53	-	\$66.54	\$66.56	2,251,600	-1.12%
11/28/2006	\$66.41	-	\$66.43	\$66.45	1,552,200	-0.18%
11/29/2006	\$67.05	-	\$66.99	\$67.05	1,336,100	0.96%
11/30/2006	\$67.16	-	\$67.13	\$67.14	1,586,400	0.16%
12/1/2006	\$66.93	-	\$66.89	\$66.93	2,593,700	-0.34%
12/4/2006	\$68.00	-	\$67.93	\$68.05	1,919,300	1.59%
12/5/2006	\$68.24	-	\$68.20	\$68.31	2,510,000	0.35%
12/6/2006	\$68.46	-	\$68.46	\$68.47	2,411,500	0.32%
12/7/2006	\$68.50	-	\$68.48	\$68.59	2,447,400	0.06%
12/8/2006	\$68.57	-	\$68.60	\$68.62	1,280,200	0.10%
12/11/2006	\$68.75	-	\$68.76	\$68.80	1,393,400	0.26%
12/12/2006	\$69.03	-	\$69.02	\$69.06	1,750,100	0.41%
12/13/2006	\$69.11	-	\$69.14	\$69.15	2,177,800	0.12%
12/14/2006	\$68.95	\$0.50	\$68.88	\$68.94	1,908,600	0.49%
12/15/2006	\$68.99	-	\$68.96	\$68.99	2,596,800	0.06%
12/18/2006	\$68.50	-	\$68.49	\$68.50	1,441,600	-0.71%
12/19/2006	\$68.40	-	\$68.42	\$68.51	1,627,600	-0.15%
12/20/2006	\$68.50	-	\$68.49	\$68.50	1,440,300	0.15%
12/21/2006	\$68.38	-	\$68.37	\$68.38	2,613,300	-0.18%
12/22/2006	\$67.99	-	\$68.01	\$68.05	1,877,800	-0.57%
12/26/2006	\$68.41	-	\$68.46	\$68.50	806,100	0.62%
12/27/2006	\$68.59	-	\$68.52	\$68.58	1,423,800	0.26%
12/28/2006	\$68.37	-	\$68.30	\$68.31	1,201,600	-0.32%
12/29/2006	\$67.90	-	\$67.82	\$67.83	1,129,000	-0.69%
1/3/2007	\$67.89	-	\$67.88	\$67.89	3,043,000	-0.01%
1/4/2007	\$67.93	-	\$67.90	\$67.91	1,819,400	0.06%
1/5/2007	\$66.91	-	\$66.82	\$66.95	3,097,900	-1.51%
1/8/2007	\$65.93	-	\$65.84	\$65.90	3,780,800	-1.48%

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
1/9/2007	\$65.45	-	\$65.42	\$65.45	2,826,500	-0.73%
1/10/2007	\$65.21	-	\$65.12	\$65.15	3,626,200	-0.37%
1/11/2007	\$65.44	-	\$65.38	\$65.44	2,947,700	0.35%
1/12/2007	\$65.27	-	\$65.16	\$65.26	3,263,400	-0.26%
1/16/2007	\$65.05	-	\$65.00	\$65.01	4,150,600	-0.34%
1/17/2007	\$64.95	-	\$64.98	\$65.00	3,408,200	-0.15%
1/18/2007	\$64.97	-	\$64.95	\$64.96	2,959,400	0.03%
1/19/2007	\$65.00	-	\$64.98	\$65.00	4,988,500	0.05%
1/22/2007	\$64.63	-	\$64.58	\$64.63	1,912,000	-0.57%
1/23/2007	\$65.00	-	\$64.98	\$65.00	1,871,700	0.57%
1/24/2007	\$64.93	-	\$64.89	\$64.89	1,928,600	-0.11%
1/25/2007	\$64.50	-	\$64.54	\$64.53	1,828,900	-0.66%
1/26/2007	\$64.43	-	\$64.48	\$64.49	1,563,600	-0.11%
1/29/2007	\$64.07	-	\$64.07	\$64.08	1,711,500	-0.56%
1/30/2007	\$63.97	-	\$63.92	\$63.96	1,487,200	-0.16%
1/31/2007	\$64.93	-	\$64.94	\$64.96	1,857,700	1.49%
2/1/2007	\$65.61	-	\$65.57	\$65.60	2,348,000	1.04%
2/2/2007	\$65.95	-	\$65.92	\$66.00	2,166,400	0.52%
2/5/2007	\$65.22	-	\$65.21	\$65.25	1,332,000	-1.11%
2/6/2007	\$65.03	-	\$65.00	\$65.04	2,679,400	-0.29%
2/7/2007	\$65.55	-	\$65.55	\$65.56	1,836,000	0.80%
2/8/2007	\$64.50	-	\$64.46	\$64.48	1,768,900	-1.61%
2/9/2007	\$64.50	-	\$64.43	\$64.47	1,363,200	-
2/12/2007	\$64.38	-	\$64.41	\$64.43	1,118,452	-0.19%
2/13/2007	\$65.46	-	\$65.47	\$65.49	1,509,653	1.66%
2/14/2007	\$66.63	-	\$66.58	\$66.61	2,003,500	1.77%
2/15/2007	\$66.19	-	\$66.20	\$66.21	2,274,500	-0.66%
2/16/2007	\$66.07	-	\$66.08	\$66.10	1,714,900	-0.18%
2/20/2007	\$66.29	-	\$66.28	\$66.29	3,819,800	0.33%
2/21/2007	\$66.09	-	\$66.09	\$66.13	1,688,300	-0.30%
2/22/2007	\$65.69	-	\$65.68	\$65.69	2,723,700	-0.61%
2/23/2007	\$65.00	-	\$64.99	\$65.01	1,980,000	-1.06%
2/26/2007	\$64.93	-	\$64.95	\$64.98	1,816,728	-0.11%
2/27/2007	\$63.70	-	\$63.75	\$63.72	3,791,600	-1.91%
2/28/2007	\$64.13	-	\$64.13	\$64.14	4,075,800	0.67%
3/1/2007	\$63.49	-	\$63.42	\$63.48	3,147,468	-1.00%
3/2/2007	\$62.19	-	\$62.18	\$62.19	3,647,300	-2.07%

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
3/5/2007	\$61.36	-	\$61.30	\$61.31	4,308,800	-1.34%
3/6/2007	\$62.11	-	\$62.14	\$62.16	3,968,864	1.21%
3/7/2007	\$62.07	-	\$62.05	\$62.06	3,091,500	-0.06%
3/8/2007	\$62.30	\$0.50	\$62.26	\$62.28	2,332,100	1.17%
3/9/2007	\$61.97	-	\$61.93	\$61.96	2,351,500	-0.53%
3/12/2007	\$61.31	-	\$61.31	\$61.38	2,271,400	-1.07%
3/13/2007	\$60.16	-	\$60.13	\$60.14	3,256,900	-1.89%
3/14/2007	\$60.69	-	\$60.65	\$60.69	2,938,730	0.88%
3/15/2007	\$60.81	-	\$60.75	\$60.76	4,568,600	0.20%
3/16/2007	\$59.52	-	\$59.47	\$59.48	5,650,100	-2.14%
3/19/2007	\$60.06	-	\$59.98	\$60.11	2,770,900	0.90%
3/20/2007	\$60.55	-	\$60.50	\$60.56	2,573,000	0.81%
3/21/2007	\$62.71	-	\$62.65	\$62.66	4,651,900	3.51%
3/22/2007	\$62.24	-	\$62.17	\$62.21	2,159,700	-0.75%
3/23/2007	\$62.37	-	\$62.39	\$62.48	2,867,788	0.21%
3/26/2007	\$62.06	-	\$62.09	\$62.10	3,191,554	-0.50%
3/27/2007	\$60.96	-	\$60.99	\$61.00	4,009,100	-1.79%
3/28/2007	\$59.28	-	\$59.28	\$59.31	4,117,181	-2.79%
3/29/2007	\$59.82	-	\$59.82	\$59.83	6,962,860	0.91%
3/30/2007	\$59.49	-	\$59.47	\$59.49	3,409,800	-0.55%
4/2/2007	\$59.13	-	\$59.11	\$59.12	3,740,643	-0.61%
4/3/2007	\$59.40	-	\$59.34	\$59.36	2,795,300	0.46%
4/4/2007	\$59.19	-	\$59.19	\$59.22	2,256,700	-0.35%
4/5/2007	\$59.88	-	\$59.83	\$59.87	3,054,100	1.16%
4/9/2007	\$59.63	-	\$59.61	\$59.64	3,062,167	-0.42%
4/10/2007	\$60.04	-	\$60.01	\$60.02	2,402,600	0.69%
4/11/2007	\$60.26	-	\$60.26	\$60.27	2,932,495	0.37%
4/12/2007	\$60.02	-	\$59.99	\$60.01	2,456,990	-0.40%
4/13/2007	\$60.01	-	\$60.01	\$60.02	1,866,702	-0.02%
4/16/2007	\$62.06	-	\$62.04	\$62.06	4,041,124	3.36%
4/17/2007	\$62.57	-	\$62.51	\$62.55	2,698,240	0.82%
4/18/2007	\$64.36	-	\$64.27	\$64.30	5,102,175	2.82%
4/19/2007	\$64.82	-	\$64.85	\$64.87	3,101,481	0.71%
4/20/2007	\$65.21	-	\$65.17	\$65.18	3,495,932	0.60%
4/23/2007	\$65.01	-	\$65.03	\$65.09	2,236,600	-0.31%
4/24/2007	\$64.87	-	\$64.86	\$64.87	2,483,388	-0.22%
4/25/2007	\$65.40	-	\$65.32	\$65.40	13,552,060	0.81%

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
4/26/2007	\$65.50	-	\$65.52	\$65.60	3,567,021	0.15%
4/27/2007	\$65.50	-	\$65.48	\$65.50	2,227,325	-
4/30/2007	\$64.78	-	\$64.75	\$64.77	2,364,860	-1.11%
5/1/2007	\$65.90	-	\$65.85	\$65.86	2,457,922	1.71%
5/2/2007	\$66.28	-	\$66.27	\$66.40	2,559,245	0.57%
5/3/2007	\$66.69	-	\$66.64	\$66.68	9,671,800	0.62%
5/4/2007	\$66.31	-	\$66.25	\$66.29	2,581,702	-0.57%
5/7/2007	\$67.21	-	\$67.13	\$67.14	2,543,511	1.35%
5/8/2007	\$67.57	-	\$67.53	\$67.62	2,483,800	0.53%
5/9/2007	\$67.44	-	\$67.40	\$67.43	2,804,519	-0.19%
5/10/2007	\$66.38	-	\$66.40	\$66.44	1,886,802	-1.58%
5/11/2007	\$66.72	-	\$66.72	\$66.73	2,646,497	0.51%
5/14/2007	\$66.06	-	\$66.07	\$66.17	3,034,600	-0.99%
5/15/2007	\$66.57	-	\$66.62	\$66.66	2,918,500	0.77%
5/16/2007	\$67.33	-	\$67.26	\$67.29	3,938,600	1.14%
5/17/2007	\$67.18	-	\$67.20	\$67.21	1,795,500	-0.22%
5/18/2007	\$67.59	-	\$67.56	\$67.57	2,057,940	0.61%
5/21/2007	\$67.50	-	\$67.49	\$67.50	2,121,500	-0.13%
5/22/2007	\$67.68	-	\$67.55	\$67.68	2,067,100	0.27%
5/23/2007	\$67.89	-	\$67.91	\$67.94	2,966,472	0.31%
5/24/2007	\$66.38	-	\$66.41	\$66.47	3,541,700	-2.25%
5/25/2007	\$66.65	-	\$66.65	\$66.69	1,448,300	0.41%
5/29/2007	\$66.48	-	\$66.48	\$66.60	1,570,000	-0.26%
5/30/2007	\$67.09	-	\$67.07	\$67.09	2,763,310	0.91%
5/31/2007	\$66.79	-	\$66.81	\$66.85	1,940,400	-0.45%
6/1/2007	\$67.09	-	\$67.13	\$67.33	2,037,700	0.45%
6/4/2007	\$67.20	-	\$67.21	\$67.25	1,805,287	0.16%
6/5/2007	\$66.94	-	\$67.00	\$67.01	1,881,100	-0.39%
6/6/2007	\$66.67	-	\$66.64	\$66.71	2,242,500	-0.40%
6/7/2007	\$65.41	-	\$65.42	\$65.43	3,292,764	-1.91%
6/8/2007	\$64.63	-	\$64.46	\$64.69	3,259,064	-1.20%
6/11/2007	\$65.58	-	\$65.51	\$65.52	3,018,200	1.46%
6/12/2007	\$65.03	-	\$65.10	\$65.12	3,223,296	-0.84%
6/13/2007	\$66.36	-	\$66.25	\$66.26	3,053,000	2.02%
6/14/2007	\$65.24	\$0.50	\$65.14	\$65.21	3,993,241	-0.94%
6/15/2007	\$65.00	-	\$64.98	\$64.99	6,070,500	-0.37%
6/18/2007	\$64.35	-	\$64.40	\$64.43	2,981,600	-1.01%

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
6/19/2007	\$64.26	-	\$64.19	\$64.31	4,529,000	-0.14%
6/20/2007	\$62.46	-	\$62.48	\$62.49	2,713,500	-2.84%
6/21/2007	\$62.72	-	\$62.67	\$62.69	3,646,400	0.42%
6/22/2007	\$62.27	-	\$62.35	\$62.36	4,568,400	-0.72%
6/25/2007	\$61.59	-	\$61.64	\$61.65	20,730,600	-1.10%
6/26/2007	\$61.84	-	\$61.86	\$62.32	3,636,610	0.41%
6/27/2007	\$61.51	-	\$61.62	\$61.63	4,426,000	-0.54%
6/28/2007	\$60.79	-	\$60.82	\$60.85	2,526,598	-1.18%
6/29/2007	\$60.70	-	\$60.64	\$60.67	3,012,618	-0.15%
7/2/2007	\$61.59	-	\$61.54	\$61.58	2,382,162	1.46%
7/3/2007	\$61.75	-	\$61.67	\$61.69	880,100	0.26%
7/5/2007	\$60.90	-	\$60.90	\$60.91	1,941,300	-1.39%
7/6/2007	\$60.85	-	\$60.86	\$61.02	1,591,700	-0.08%
7/9/2007	\$60.57	-	\$60.61	\$60.64	2,011,900	-0.46%
7/10/2007	\$59.68	-	\$59.66	\$59.67	3,256,184	-1.48%
7/11/2007	\$59.90	-	\$59.93	\$59.94	2,530,100	0.37%
7/12/2007	\$61.24	-	\$61.28	\$61.63	2,323,800	2.21%
7/13/2007	\$61.36	-	\$61.21	\$61.24	3,374,000	0.20%
7/16/2007	\$61.30	-	\$61.27	\$61.31	1,919,300	-0.10%
7/17/2007	\$61.47	-	\$61.53	\$61.54	3,431,400	0.28%
7/18/2007	\$61.25	-	\$61.27	\$61.36	4,931,900	-0.36%
7/19/2007	\$61.49	-	\$61.20	\$61.86	2,762,551	0.39%
7/20/2007	\$60.00	-	\$60.00	\$60.01	5,333,600	-2.45%
7/23/2007	\$60.81	-	\$60.75	\$60.77	3,767,570	1.34%
7/24/2007	\$58.70	-	\$58.65	\$58.76	4,507,709	-3.53%
7/25/2007	\$60.22	-	\$60.22	\$60.24	5,021,300	2.56%
7/26/2007	\$59.39	-	\$59.46	\$59.49	5,559,402	-1.39%
7/27/2007	\$57.68	-	\$57.68	\$57.70	6,620,500	-2.92%
7/30/2007	\$59.15	-	\$59.05	\$59.07	4,768,500	2.52%
7/31/2007	\$57.27	-	\$57.28	\$57.34	5,139,470	-3.23%
8/1/2007	\$56.90	-	\$56.90	\$57.85	5,829,567	-0.65%
8/2/2007	\$56.61	-	\$56.67	\$56.68	4,654,500	-0.51%
8/3/2007	\$55.70	-	\$55.60	\$55.71	9,098,100	-1.62%
8/6/2007	\$60.00	-	\$59.99	\$60.00	9,840,900	7.44%
8/7/2007	\$61.64	-	\$61.56	\$61.58	13,405,300	2.70%
8/8/2007	\$62.64	-	\$62.32	\$63.00	10,984,400	1.61%
8/9/2007	\$61.67	-	\$61.07	\$62.48	8,675,000	-1.56%

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
8/10/2007	\$61.95	-	\$61.81	\$61.85	9,666,100	0.45%
8/13/2007	\$61.52	-	\$61.45	\$61.48	6,108,400	-0.70%
8/14/2007	\$59.41	-	\$59.25	\$59.27	5,020,300	-3.49%
8/15/2007	\$60.28	-	\$60.18	\$61.02	4,588,300	1.45%
8/16/2007	\$61.34	-	\$61.66	\$61.68	10,156,300	1.74%
8/17/2007	\$63.70	-	\$62.87	\$64.45	10,729,000	3.78%
8/20/2007	\$63.53	-	\$63.44	\$63.48	8,767,600	-0.27%
8/21/2007	\$64.16	-	\$64.16	\$64.20	6,500,500	0.99%
8/22/2007	\$64.89	-	\$64.74	\$64.83	3,407,800	1.13%
8/23/2007	\$64.04	-	\$63.99	\$64.03	2,994,700	-1.32%
8/24/2007	\$63.60	-	\$63.44	\$63.50	1,981,700	-0.69%
8/27/2007	\$62.58	-	\$62.58	\$62.68	20,405,360	-1.62%
8/28/2007	\$61.20	-	\$61.23	\$61.24	4,789,700	-2.23%
8/29/2007	\$63.25	-	\$62.52	\$63.01	4,410,800	3.29%
8/30/2007	\$60.07	-	\$60.07	\$60.36	7,944,000	-5.16%
8/31/2007	\$61.61	-	\$61.47	\$61.48	11,317,200	2.53%
9/4/2007	\$62.25	-	\$62.21	\$62.25	3,887,600	1.03%
9/5/2007	\$60.15	-	\$60.07	\$60.15	6,764,500	-3.43%
9/6/2007	\$59.39	-	\$59.31	\$59.34	3,248,100	-1.27%
9/7/2007	\$59.31	-	\$59.31	\$59.38	4,691,600	-0.13%
9/10/2007	\$58.75	-	\$58.79	\$58.82	4,374,100	-0.95%
9/11/2007	\$59.25	-	\$59.28	\$59.34	2,963,400	0.85%
9/12/2007	\$58.77	-	\$58.82	\$59.57	2,673,800	-0.81%
9/13/2007	\$58.00	\$0.50	\$57.95	\$57.97	3,849,800	-0.46%
9/14/2007	\$57.37	-	\$57.40	\$57.41	3,497,700	-1.09%
9/17/2007	\$56.55	-	\$56.56	\$56.63	3,445,600	-1.44%
9/18/2007	\$59.52	-	\$59.53	\$59.55	5,592,400	5.12%
9/19/2007	\$61.16	-	\$61.23	\$61.25	8,122,500	2.72%
9/20/2007	\$59.89	-	\$59.90	\$59.93	4,427,140	-2.10%
9/21/2007	\$60.35	-	\$59.55	\$60.92	5,120,100	0.77%
9/24/2007	\$59.50	-	\$59.47	\$59.50	2,756,800	-1.42%
9/25/2007	\$59.53	-	\$59.57	\$60.24	2,875,100	0.05%
9/26/2007	\$59.55	-	\$59.13	\$60.37	2,801,200	0.03%
9/27/2007	\$59.99	-	\$59.95	\$59.96	1,739,900	0.74%
9/28/2007	\$59.01	-	\$59.02	\$59.05	3,555,300	-1.65%
10/1/2007	\$60.30	-	\$60.24	\$60.26	2,846,100	2.16%
10/2/2007	\$62.04	-	\$62.03	\$62.04	3,213,700	2.84%

Exhibit-4**FRE Stock Prices, Volume, and Returns**

1 August 2006 through 20 November 2007

Date	FRE Closing Price	FRE Dividend	FRE Closing Bid	FRE Closing Ask	FRE Trading Volume	FRE Logarithmic Return
10/3/2007	\$62.47	-	\$62.44	\$62.59	2,847,000	0.69%
10/4/2007	\$63.19	-	\$63.23	\$63.25	3,536,100	1.15%
10/5/2007	\$63.43	-	\$63.35	\$63.37	2,680,300	0.38%
10/8/2007	\$62.80	-	\$62.80	\$62.81	1,320,100	-1.00%
10/9/2007	\$62.78	-	\$62.80	\$62.84	2,154,500	-0.03%
10/10/2007	\$62.05	-	\$62.07	\$62.08	2,659,900	-1.17%
10/11/2007	\$60.78	-	\$60.72	\$60.73	4,967,600	-2.07%
10/12/2007	\$60.63	-	\$60.54	\$60.60	2,024,000	-0.25%
10/15/2007	\$59.00	-	\$58.94	\$59.00	3,281,800	-2.73%
10/16/2007	\$57.62	-	\$57.63	\$57.67	3,295,300	-2.37%
10/17/2007	\$56.22	-	\$56.05	\$56.23	8,250,806	-2.46%
10/18/2007	\$54.70	-	\$54.65	\$54.75	5,298,422	-2.74%
10/19/2007	\$53.05	-	\$52.98	\$53.02	5,496,102	-3.06%
10/22/2007	\$52.82	-	\$52.67	\$52.80	6,649,219	-0.43%
10/23/2007	\$53.24	-	\$53.49	\$53.50	2,981,600	0.79%
10/24/2007	\$51.05	-	\$50.95	\$50.98	9,003,196	-4.20%
10/25/2007	\$50.59	-	\$50.55	\$50.57	6,023,600	-0.91%
10/26/2007	\$52.69	-	\$52.64	\$52.65	9,534,171	4.07%
10/29/2007	\$51.75	-	\$51.74	\$51.78	3,870,199	-1.80%
10/30/2007	\$51.95	-	\$51.92	\$51.94	3,266,537	0.39%
10/31/2007	\$52.23	-	\$52.21	\$52.23	4,586,900	0.54%
11/1/2007	\$49.43	-	\$49.48	\$49.50	7,292,427	-5.51%
11/2/2007	\$48.33	-	\$48.34	\$48.75	6,821,100	-2.25%
11/5/2007	\$47.34	-	\$47.37	\$47.39	5,843,337	-2.07%
11/6/2007	\$49.39	-	\$49.30	\$49.44	5,170,493	4.24%
11/7/2007	\$45.13	-	\$45.16	\$45.20	15,007,170	-9.02%
11/8/2007	\$43.82	-	\$43.77	\$43.78	10,848,560	-2.95%
11/9/2007	\$41.70	-	\$41.70	\$41.71	15,933,100	-4.96%
11/12/2007	\$40.00	-	\$39.38	\$40.50	12,496,290	-4.16%
11/13/2007	\$44.56	-	\$44.57	\$44.61	13,153,000	10.80%
11/14/2007	\$44.19	-	\$44.09	\$44.13	7,940,901	-0.83%
11/15/2007	\$41.86	-	\$41.85	\$41.86	7,589,897	-5.42%
11/16/2007	\$40.72	-	\$40.76	\$40.81	19,822,340	-2.76%
11/19/2007	\$37.50	-	\$37.58	\$37.59	22,398,250	-8.24%
11/20/2007	\$26.74	-	\$26.72	\$26.75	84,594,330	-33.82%

Source: CRSP.

Exhibit-5
Freddie Mac Common Stock

Selected Events for Collective Empirical Tests

<i>The New York Times</i>	<i>The Wall Street Journal</i>	Effective Date of News
"Freddie Mac Tightens Standards," by Vikas Bajaj, 28 February 2007.	"Freddie Won't Buy Some Subprime Loans," by James Hagerty and Damian Paletta, 28 February 2007.	27 February 2007
"Help for Subprime Mortgage Holders," by Bloomberg News, 19 April 2007.	"Fannie, Freddie Will Offer Lifelines To Struggling Subprime Borrowers," by Damian Paletta, 17 April 2007.	18 April 2007
"House Votes to Tighten Reins On Fannie Mac and Freddie Mac," 23 May 2007.	"House Backs Fannie, Freddie Bill, But Obstacles Loom in Senate," by Damian Paletta, 23 May 2007.	22 May 2007
"Freddie Mac Reports Another Quarterly Loss," by Reuters, 15 June 2007.	"Freddie's Stricter Accounting Renders a Loss," by Damian Paletta and James Hagerty, 15 June 2007.	14 June 2007
"Government May Raise Limits on Home-Loan Purchases," by Bloomberg News, 9 August 2007.	"Big Fans for Fannie, Freddie --- Some Lawmakers See One-Time Pariah Firms As Subprime Salvation," by James Hagerty, 8 August 2007.	8 August 2007
"Freddie Mac Earnings Drop 45%," by Associated Press, 31 August 2007.	"Housing Slump Hurts Freddie Mac's Net," by Damian Paletta and Lingling Wei, 31 August 2007.	30 August 2007
"Settlement Will Cost Freddie Mac \$50 Million," by Associated Press, 28 September 2007.	"Freddie Mac, Former Executives Settle Lawsuit With the SEC," by Judith Burns, 28 September 2007.	27 September 2007
"New York Widens Inquiry on Mortgages," by Bloomberg News, 8 November 2007.	"Probe Widens on Inflated Home Appraisals," by James Hagerty and Ann Carrns, 8 November 2007.	8 November 2007
"Loan Crisis Entangles Freddie Mac," by Michael Grynbaum, 21 November 2007.	"Freddie Mac Posts Deep Loss on Credit Woes," by James Hagerty, 21 November 2007.	20 November 2007

Exhibit-6**Market and Peer Index Returns**

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
8/1/2006	-0.53%	-0.25%
8/2/2006	0.67%	0.12%
8/3/2006	0.24%	0.30%
8/4/2006	-0.12%	0.26%
8/7/2006	-0.30%	-0.39%
8/8/2006	-0.39%	-0.53%
8/9/2006	-0.42%	-1.23%
8/10/2006	0.39%	0.52%
8/11/2006	-0.46%	-0.33%
8/14/2006	0.07%	0.05%
8/15/2006	1.48%	1.69%
8/16/2006	0.93%	0.53%
8/17/2006	0.15%	0.30%
8/18/2006	0.30%	0.14%
8/21/2006	-0.31%	-0.38%
8/22/2006	0.13%	-0.09%
8/23/2006	-0.52%	-0.11%
8/24/2006	0.13%	0.24%
8/25/2006	-0.03%	-0.51%
8/28/2006	0.55%	0.62%
8/29/2006	0.30%	-0.31%
8/30/2006	0.13%	0.04%
8/31/2006	0.09%	0.09%
9/1/2006	0.50%	0.20%
9/5/2006	0.26%	0.32%
9/6/2006	-1.15%	-0.34%
9/7/2006	-0.54%	-0.75%
9/8/2006	0.24%	0.56%
9/11/2006	-0.16%	0.15%
9/12/2006	1.13%	1.21%
9/13/2006	0.51%	0.68%
9/14/2006	-0.22%	0.11%
9/15/2006	0.21%	0.49%
9/18/2006	0.15%	-0.19%
9/19/2006	-0.33%	0.16%
9/20/2006	0.52%	0.71%
9/21/2006	-0.44%	-0.51%

Exhibit-6**Market and Peer Index Returns**

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
9/22/2006	-0.38%	-0.02%
9/25/2006	0.79%	1.01%
9/26/2006	0.72%	0.46%
9/27/2006	0.21%	-0.35%
9/28/2006	0.19%	0.30%
9/29/2006	-0.30%	-0.19%
10/2/2006	-0.39%	-0.35%
10/3/2006	-0.04%	1.04%
10/4/2006	1.23%	1.12%
10/5/2006	0.51%	0.03%
10/6/2006	-0.31%	-0.40%
10/9/2006	0.22%	0.29%
10/10/2006	0.22%	0.01%
10/11/2006	-0.36%	-0.28%
10/12/2006	1.05%	0.53%
10/13/2006	0.33%	0.24%
10/16/2006	0.43%	-0.23%
10/17/2006	-0.46%	-0.16%
10/18/2006	0.10%	0.23%
10/19/2006	0.24%	-0.75%
10/20/2006	-0.04%	0.02%
10/23/2006	0.54%	0.65%
10/24/2006	0.08%	-0.06%
10/25/2006	0.43%	0.30%
10/26/2006	0.64%	0.82%
10/27/2006	-0.82%	-0.96%
10/30/2006	0.03%	0.29%
10/31/2006	0.01%	-0.13%
11/1/2006	-0.90%	-0.88%
11/2/2006	-0.01%	-0.18%
11/3/2006	-0.03%	-0.27%
11/6/2006	1.15%	1.32%
11/7/2006	0.18%	0.22%
11/8/2006	0.33%	0.30%
11/9/2006	-0.47%	-0.63%
11/10/2006	0.22%	0.59%
11/13/2006	0.22%	0.14%

Exhibit-6**Market and Peer Index Returns**

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
11/14/2006	0.69%	0.52%
11/15/2006	0.40%	-0.02%
11/16/2006	0.11%	0.63%
11/17/2006	0.02%	-0.21%
11/20/2006	0.05%	0.28%
11/21/2006	0.31%	-0.12%
11/22/2006	0.30%	0.11%
11/24/2006	-0.19%	-0.35%
11/27/2006	-1.48%	-1.64%
11/28/2006	0.30%	0.07%
11/29/2006	0.96%	0.59%
11/30/2006	0.17%	-0.25%
12/1/2006	-0.28%	-0.43%
12/4/2006	0.99%	0.98%
12/5/2006	0.39%	0.71%
12/6/2006	-0.11%	0.22%
12/7/2006	-0.34%	-0.34%
12/8/2006	0.12%	0.30%
12/11/2006	0.20%	0.63%
12/12/2006	-0.20%	0.01%
12/13/2006	0.12%	0.08%
12/14/2006	0.76%	0.75%
12/15/2006	0.00%	0.40%
12/18/2006	-0.50%	0.46%
12/19/2006	0.19%	-0.09%
12/20/2006	-0.06%	0.15%
12/21/2006	-0.38%	-0.30%
12/22/2006	-0.46%	-0.40%
12/26/2006	0.43%	0.69%
12/27/2006	0.78%	0.78%
12/28/2006	-0.10%	-0.31%
12/29/2006	-0.45%	-0.61%
1/3/2007	-0.13%	0.27%
1/4/2007	0.05%	-0.16%
1/5/2007	-0.73%	-0.83%
1/8/2007	0.26%	0.39%
1/9/2007	-0.00%	-0.16%

Exhibit-6**Market and Peer Index Returns**

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
1/10/2007	0.21%	0.28%
1/11/2007	0.73%	0.50%
1/12/2007	0.61%	0.22%
1/16/2007	0.03%	0.26%
1/17/2007	-0.06%	-0.25%
1/18/2007	-0.47%	-0.30%
1/19/2007	0.43%	0.22%
1/22/2007	-0.54%	-0.08%
1/23/2007	0.52%	-0.01%
1/24/2007	0.88%	0.92%
1/25/2007	-1.08%	-1.34%
1/26/2007	0.01%	0.13%
1/29/2007	0.01%	-0.51%
1/30/2007	0.58%	0.51%
1/31/2007	0.63%	0.66%
2/1/2007	0.62%	0.54%
2/2/2007	0.13%	0.22%
2/5/2007	-0.06%	-0.11%
2/6/2007	0.15%	0.48%
2/7/2007	0.22%	0.02%
2/8/2007	-0.04%	-0.06%
2/9/2007	-0.69%	-0.98%
2/12/2007	-0.39%	-0.30%
2/13/2007	0.80%	0.94%
2/14/2007	0.72%	0.78%
2/15/2007	0.17%	0.05%
2/16/2007	0.05%	0.10%
2/20/2007	0.36%	0.45%
2/21/2007	-0.03%	-0.29%
2/22/2007	-0.04%	-0.24%
2/23/2007	-0.26%	-1.08%
2/26/2007	-0.13%	-0.79%
2/27/2007	-3.47%	-3.62%
2/28/2007	0.47%	0.55%
3/1/2007	-0.29%	-0.19%
3/2/2007	-1.26%	-1.02%
3/5/2007	-1.21%	-1.59%

Exhibit-6**Market and Peer Index Returns**

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
3/6/2007	1.66%	2.06%
3/7/2007	-0.13%	-0.66%
3/8/2007	0.72%	0.91%
3/9/2007	0.16%	0.17%
3/12/2007	0.31%	-0.03%
3/13/2007	-2.04%	-3.22%
3/14/2007	0.54%	0.63%
3/15/2007	0.48%	0.89%
3/16/2007	-0.36%	-0.66%
3/19/2007	1.10%	1.17%
3/20/2007	0.68%	0.71%
3/21/2007	1.66%	2.38%
3/22/2007	-0.01%	-0.63%
3/23/2007	0.17%	0.17%
3/26/2007	0.06%	-0.37%
3/27/2007	-0.57%	-0.80%
3/28/2007	-0.70%	-1.21%
3/29/2007	0.35%	0.57%
3/30/2007	-0.04%	-0.13%
4/2/2007	0.30%	-0.54%
4/3/2007	0.89%	1.17%
4/4/2007	0.15%	-0.21%
4/5/2007	0.36%	0.17%
4/9/2007	0.06%	-0.02%
4/10/2007	0.27%	0.22%
4/11/2007	-0.59%	-0.77%
4/12/2007	0.64%	0.03%
4/13/2007	0.37%	0.49%
4/16/2007	1.04%	2.10%
4/17/2007	0.10%	0.16%
4/18/2007	0.03%	1.00%
4/19/2007	-0.28%	-0.14%
4/20/2007	0.93%	0.69%
4/23/2007	-0.17%	-0.40%
4/24/2007	-0.07%	-0.38%
4/25/2007	0.94%	1.36%
4/26/2007	-0.06%	-0.24%

Exhibit-6

Market and Peer Index Returns

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
4/27/2007	-0.08%	-0.11%
4/30/2007	-0.93%	-0.68%
5/1/2007	0.17%	0.15%
5/2/2007	0.82%	0.58%
5/3/2007	0.39%	0.60%
5/4/2007	0.29%	0.26%
5/7/2007	0.26%	0.26%
5/8/2007	-0.14%	-0.22%
5/9/2007	0.37%	0.61%
5/10/2007	-1.38%	-1.39%
5/11/2007	1.03%	0.88%
5/14/2007	-0.27%	-0.57%
5/15/2007	-0.19%	-0.24%
5/16/2007	0.73%	1.07%
5/17/2007	-0.05%	-0.30%
5/18/2007	0.68%	0.34%
5/21/2007	0.32%	-0.01%
5/22/2007	0.09%	0.15%
5/23/2007	-0.09%	-0.17%
5/24/2007	-1.14%	-0.91%
5/25/2007	0.64%	0.17%
5/29/2007	0.31%	0.40%
5/30/2007	0.82%	0.59%
5/31/2007	0.16%	-0.33%
6/1/2007	0.51%	0.37%
6/4/2007	0.21%	-0.14%
6/5/2007	-0.53%	-0.63%
6/6/2007	-0.94%	-0.77%
6/7/2007	-1.83%	-1.72%
6/8/2007	1.07%	1.15%
6/11/2007	0.11%	0.37%
6/12/2007	-1.09%	-1.14%
6/13/2007	1.41%	1.74%
6/14/2007	0.53%	-0.21%
6/15/2007	0.74%	0.43%
6/18/2007	-0.09%	-0.06%
6/19/2007	0.18%	0.33%

Exhibit-6**Market and Peer Index Returns**

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
6/20/2007	-1.28%	-1.69%
6/21/2007	0.54%	0.21%
6/22/2007	-1.08%	-1.75%
6/25/2007	-0.48%	-0.59%
6/26/2007	-0.40%	-0.18%
6/27/2007	0.93%	0.83%
6/28/2007	0.07%	-0.15%
6/29/2007	-0.07%	-0.74%
7/2/2007	1.13%	1.19%
7/3/2007	0.34%	0.55%
7/5/2007	0.12%	-0.50%
7/6/2007	0.45%	0.16%
7/9/2007	0.15%	-0.27%
7/10/2007	-1.37%	-2.22%
7/11/2007	0.51%	0.41%
7/12/2007	1.74%	2.13%
7/13/2007	0.32%	0.19%
7/16/2007	-0.31%	-0.32%
7/17/2007	-0.01%	0.11%
7/18/2007	-0.16%	-1.19%
7/19/2007	0.48%	-0.29%
7/20/2007	-1.17%	-1.83%
7/23/2007	0.30%	-0.04%
7/24/2007	-2.03%	-2.91%
7/25/2007	0.27%	0.85%
7/26/2007	-2.42%	-2.39%
7/27/2007	-1.48%	-1.34%
7/30/2007	0.93%	1.22%
7/31/2007	-1.02%	-1.77%
8/1/2007	0.41%	0.40%
8/2/2007	0.60%	0.18%
8/3/2007	-2.63%	-3.91%
8/6/2007	1.79%	4.59%
8/7/2007	0.66%	0.90%
8/8/2007	1.55%	2.13%
8/9/2007	-2.73%	-3.82%
8/10/2007	-0.05%	-0.12%

Exhibit-6**Market and Peer Index Returns**

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
8/13/2007	-0.06%	-0.81%
8/14/2007	-1.92%	-2.42%
8/15/2007	-1.58%	-0.99%
8/16/2007	0.19%	3.46%
8/17/2007	2.41%	3.56%
8/20/2007	0.16%	-0.81%
8/21/2007	0.22%	0.47%
8/22/2007	1.29%	0.83%
8/23/2007	-0.16%	-0.45%
8/24/2007	1.23%	0.54%
8/27/2007	-0.83%	-1.37%
8/28/2007	-2.37%	-3.29%
8/29/2007	2.16%	1.79%
8/30/2007	-0.38%	-1.12%
8/31/2007	1.22%	1.51%
9/4/2007	1.10%	1.16%
9/5/2007	-1.01%	-2.11%
9/6/2007	0.44%	-0.21%
9/7/2007	-1.64%	-1.46%
9/10/2007	-0.29%	-0.09%
9/11/2007	1.34%	1.32%
9/12/2007	0.02%	-0.20%
9/13/2007	0.74%	1.58%
9/14/2007	0.13%	-0.04%
9/17/2007	-0.58%	-0.75%
9/18/2007	2.89%	4.36%
9/19/2007	0.58%	0.58%
9/20/2007	-0.52%	-1.75%
9/21/2007	0.49%	0.24%
9/24/2007	-0.45%	-1.24%
9/25/2007	-0.04%	-0.32%
9/26/2007	0.55%	0.56%
9/27/2007	0.53%	0.78%
9/28/2007	-0.27%	-0.42%
10/1/2007	1.36%	2.06%
10/2/2007	0.05%	0.83%
10/3/2007	-0.52%	0.01%

Exhibit-6

Market and Peer Index Returns

1 August 2006 through 20 November 2007

Date	Market Index Return	Peer Index Return
10/4/2007	0.27%	0.24%
10/5/2007	1.18%	1.21%
10/8/2007	-0.30%	-0.83%
10/9/2007	0.80%	0.82%
10/10/2007	-0.02%	-1.00%
10/11/2007	-0.52%	-0.23%
10/12/2007	0.53%	-0.04%
10/15/2007	-0.86%	-1.86%
10/16/2007	-0.71%	-1.87%
10/17/2007	0.29%	-0.14%
10/18/2007	0.04%	-1.08%
10/19/2007	-2.49%	-2.97%
10/22/2007	0.33%	0.95%
10/23/2007	1.02%	0.63%
10/24/2007	-0.32%	-0.78%
10/25/2007	-0.10%	-0.63%
10/26/2007	1.37%	2.51%
10/29/2007	0.54%	-0.06%
10/30/2007	-0.69%	-0.54%
10/31/2007	1.31%	0.78%
11/1/2007	-2.62%	-4.75%
11/2/2007	0.21%	-1.65%
11/5/2007	-0.66%	-1.41%
11/6/2007	1.27%	1.70%
11/7/2007	-2.72%	-5.19%
11/8/2007	-0.06%	0.45%
11/9/2007	-1.52%	0.14%
11/12/2007	-1.41%	0.15%
11/13/2007	2.75%	4.81%
11/14/2007	-0.58%	-0.63%
11/15/2007	-1.42%	-3.11%
11/16/2007	0.46%	-0.76%
11/19/2007	-1.89%	-3.05%
11/20/2007	0.40%	-1.31%

Sources: Bloomberg and CRSP.

Exhibit-7**FRE Common Stock Regression Results**

Estimation Period: 1 August 2006 to 8 August 2007

Regression Statistics	
R Squared	0.583
Adjusted R Squared	0.571
Standard Error	0.77%
Observations	257

	Coefficients	Standard Error	t-statistic
Intercept	0.02%	0.05%	0.39
Market Index	-0.081	16.37%	-0.50
Peer Index	1.076	12.77%	8.43
February 27, 2007	1.68%	0.82%	2.06
April 18, 2007	1.72%	0.78%	2.20
May 22, 2007	0.09%	0.77%	0.12
June 14, 2007	-0.69%	0.78%	-0.88
August 8, 2007	-0.58%	0.78%	-0.74

Estimation Period: 9 August 2007 to 20 November 2007

Regression Statistics	
R Squared	0.709
Adjusted R Squared	0.687
Standard Error	1.66%
Observations	73

	Coefficients	Standard Error	t-statistic
Intercept	-0.34%	0.21%	-1.65
Market Index	0.328	35.14%	0.93
Peer Index	1.132	23.46%	4.83
August 30, 2007	-3.42%	1.68%	-2.04
September 27, 2007	0.02%	1.68%	0.01
November 8, 2007	-3.10%	1.69%	-1.84
November 20, 2007	-32.13%	1.66%	-19.30

Exhibit-8

Freddie Mac Allegation-Related Event Study Results

Date	Market									
	FRE Closing Price	Day Closing Price	FRE Prior	FRE Logarithmic Return	Index Logarithmic Return	Peer Index Logarithmic Return	FRE Explained Return	FRE Residual Return	<i>t</i> -statistic	
20 November 2007	\$26.74		\$37.50	-33.82%	0.40%	-1.31%	-1.69%	-32.13%	-19.30	

Exhibit-9

Freddie Mac Collective Test Result

	<i>WSJ/NYT</i>
	News Event Days
General Parameters	
<i>Trading Days During Class Period</i>	330
# of News Days	9
# of Non-News Days	321
Z-Test Results	
% of Statistically Significant News Days	44.44%
% of Statistically Significant Non-News Days	5.92%
Z-statistic	<u>4.48*</u>
95% Critical Threshold	1.64
P-value	0.0005%

Note:

"*" Indicates z-statistics that are statistically significant at the 95% confidence level.